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The Nurseryman's Forte: To Make America More Beautiful and Fruitful

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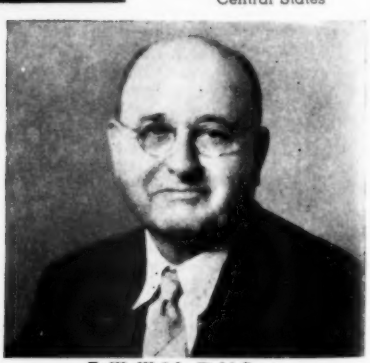

F. W. Welch, Field Supt.

AMERICAN NURSERYMAN

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VOL. LXXX, No. 6 — SEPTEMBER 15, 1944

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AMERICAN NURSERYMAN

F. R. KILNER, Editor

Editorial

WHAT IS IT WORTH?

While prices of nursery stock have been increasing in the past two years, there has been, especially of late, discussion as to whether they should be higher or lower. Just what is the value of a given tree or shrub is open to discussion. One will regard it from the point of view of costs of production, another from the standpoint of supply and demand and another from the intrinsic value of the item to the ultimate buyer.

The attitude of the nurseryman himself toward his product not only influences his ideas, but also those of his customers. The man who refers to himself as a "bush peddler" and talks of his commodity as "brush" will not inspire the appreciation of values that are pictured in the customer's mind by the salesman of more extensive and descriptive vocabulary.

There is a strong feeling in the minds of some nurserymen that the intrinsic value of their stock is much greater than the common estimate, that when a person spends a dollar for a plant he gets considerably more value out of his purchase than he does from commodities of other kinds.

Instances might be cited without end. The mat on the doorstep may cost as much as the shrub planted on either side, yet it neither lasts so long nor adds so much to the entrance of that house. Furniture and drapes for the indoor living room wear out and depreciate, while the shrubs and trees in the outdoor living room are attaining a beauty and a glory far beyond the price paid for them. More specific comparisons might be multiplied to indicate that the public usually gets considerably more than its money's worth in buying nursery stock.

Often those from other walks of life appreciate these comparisons better than nurserymen themselves. The late Ernest C. Haysler was a retired hardware merchant and kept something of the amateur's attitude after he and his son successfully developed the Cloverset Flower Farm. One trait of this shrewd businessman was pictured in an anecdote in the Kansas City Star shortly after his death. It read:

A few months before Mr. Haysler died, the wife of a prominent cement man asked to see the shrubbery at the Haysler home, after purchases at the adjacent nursery. There, just north of the house, her eye was caught by a shapely bush flaming with red berries.

Would Mr. Haysler be willing to sell it?

"I rise at 5:30 o'clock every morning," the nurseryman answered. "I sit in that north window, read the paper and between pages look out north, enjoying this view toward the city. This bush has become a part of that morning pleasure. I would not care to sell it."

After some persuasion Mr. Haysler put a price of $40 on the shrub.

"Oh, yes," he added, "it's too much for the plant. Have you two $20 bills in your purse? Yes? Now just lay them on this table, then look at the bush of the red berries and make up your mind which sight gives you the more pleasure."

The woman bought the bush.

The Mirror of the Trade

WPB TO LIFT CONTROLS.

An end to some government controls is expected with the conclusion of the war in Europe, according to plans of the War Production Board recently announced at Washington. Upon the capitulation of Germany, WPB plans to cancel most of its L and M orders. There are 270 L orders, which limit the type of civilian wares which can be manufactured. There are 267 M orders, which restrict the quantity of materials to be used in making particular products. Almost all of the orders of both types will be canceled upon Germany's surrender. A few must stay in force to restrict the use of such items as lumber, tin, chemicals, crude rubber, textiles, Manila hemp and paper products.

Subsequent to this announcement, the new acting chairman of WPB promised at a press conference that both large and small business would be allowed to move toward nonmilitary production "without a lot of cumbersome red tape."

Most price controls will stay in force for some time at least after the end of the European conflict. These are under OPA jurisdiction.

Congress has set one year as its goal for the period of reconversion of industry after peace comes.

Probability that manpower controls would be reduced or eliminated following the collapse of Germany was seen in a statement issued last week by Paul V. McNutt, chairman of the War Manpower Commission. While he did not elaborate on the controls which will be removed, he expressed the opinion that manpower requirements could be met after Germany's downfall "without the controls which have been in effect in recent months."

Because of the great handicaps to production encountered by the lumber industry and because of the mounting requirements of the war, continued stringent allocation of available lumber appears necessary, according to the September industry report prepared by the WPB in cooperation with the Department of Commerce and the Department of Agriculture. Transportation, manpower shortage and a greatly reduced national stock pile, in the face of the great demand, make the continued strict controls necessary.

RECOMMEND MINIMUM PRICES IN ENGLAND.

In an effort to maintain a standard of prices, wholesale and retail, which are fair to producers and consumers alike, the Horticultural Trade Association, in England and Scotland, has for some years recommended to members minimum prices for fruit trees, roses and general nursery stock, through the association's values advisory committees.

The recommended prices have been supplied members as a reliable guide to those who had no cost systems on which to base prices. While price cutting has by no means been eliminated, the association across the water has found the results from the recommended price schedules sufficient to be extended to a new section formed during the past year in the interests of hardy herbaceous and alpine plants.

For the first time such a price schedule, that of hardy plants, has been published in the Horticultural Advertiser, the official periodical of the Horticultural Trades Association. It may be of interest to note that most recommended prices of standard varieties of hardy plants are one shilling or one shilling sixpence, better and newer varieties ranging upward to several shillings. Minimum retail prices for alpines are likewise one shilling or one shilling sixpence.

In publishing the prices, note was made that the committee carried in mind both the interest of the public and that of the trade, that the prices were minimum values and only for the current season, that stocks were low on account of short production and losses due to weather. It is emphasized that these prices are for quality plants, and there is an obligation to give the public full value, just as it is in the interests of the producers to discourage price cutting, particularly in view of the current demand and general high scale of prices.

Twentieth Shade Tree Conference

By L. C. Chadwick, Secretary

Approximately 200 arborists and shade tree enthusiasts from twenty-two states registered at the twentieth National Shade Tree Conference, at Pittsburgh, August 30 to September 1. Those in attendance were there for business and information. When the meetings were going on, the halls were clear.

Newly elected officers were: President, Prof. Forrest C. Strong, botany department, Michigan State College, and vice-president, Samuel Newman Baxter, Fairmount park commission, Philadelphia. Secretary-treasurer L. C. Chadwick and Editor Paul E. Tilford were reappointed for 1944-45. Albert W. Meserve, Danbury, Conn.; C. M. Blume, Houston, Tex., and Dr. L. R. Tehon, Illinois Natural History Survey, Urbana, Ill., were the newly elected members of the executive committee. Clyde C. Hartney, Boston, Mass., was elected membership committeeman from the New England region, and Charles F. Irish, Cleveland, O., was reelected as membership committeeman from the central region.

A new nomenclature and standards committee was elected, consisting of A. Robert Thompson, National Park Service, Chicago; B. Jerry Baker, South Charleston, W. Va., and Dr. O. N. Liming, U.S.D.A., Bloomfield, N. J. The purpose of this committee is to consider the standardization of terms, materials and methods used in the practices and literature pertaining to the care of shade trees.

Arborists' Problems.

The forenoon session August 30, an open meeting of the National Arborists' Association, was devoted to a discussion of several subjects of primary interest to the practicing arborists. Dr. Paul E. Tilford, secretary of the National Arborists' Association, discussed the present status of priorities as they apply to the arborist, and the probable availability of materials and equipment for the coming year. Dr. L. C. Chadwick, secretary of the National Shade Tree Conference, discussed at some length the subject of rehabilitation as it may affect the arborists. The provisions for vocational training for disabled veterans, the selective training and service act and the G. I. bill of rights were emphasized. Congress has provided means for vocational education and training to overcome handicaps resulting from service-connected disability. During training single veterans receive $80 per month with an additional $10 if married and $5 for each child. The selective training and service act provides that a veteran is entitled to his old job or its equivalent at the same rate of pay, the same seniority and the same privileges previously held, upon his return provided the job is still current and the veteran is capable of doing the work. The G. I. bill of rights includes provisions of hospitalization, educational allowances, guaranteed loans, equipment and unemployment allowances.

The problem of labor was discussed by Clyde C. Hartney, Hartney-Amalia, Inc., Boston, Mass., and Karl Kuemmerling, Canton, O. Among the points brought out were experiences encountered in using schoolboys, concentration on work that could be done by unskilled and semi-skilled labor, short cuts used in saving labor, line-clearance problems and the reaction of clients to the way business has to be conducted under present restrictions.

L. C. Chadwick.

Business Actions.

Several important recommendations were made at the business meeting of the conference, Wednesday afternoon, August 30. The movement for living memorials was endorsed. The point was emphasized that sufficient funds should be provided, either by direct appropriation or endowment to maintain such memorials properly. The matter of sufficient planting about veterans' hospitals was discussed at considerable length, and some action will be taken. The National Shade Tree Conference went on record as endorsing a national Arbor day. The selection of the 1945 convention city was left to the executive committee.

Opening Educational Session.

The educational program of the National Shade Tree Conference opened Wednesday afternoon with the discussion of several subjects pertaining to arboriculture during wartime.

Prof. R. G. McCall, department of agricultural engineering, Pennsylvania State College, discussed maintenance of equipment, particularly as it applies to sprayers.

The problem of proper care and adjustment of a sprayer has always been an important one. At the present time the importance of proper care and maintenance of equipment cannot be overemphasized because of the shortage of new equipment. Many of the high-class alloys normally used in sprayer equipment are being used for other purposes, with only a limited amount available for civilian demands. Because of the shortages of labor, material and factory facilities, only a small number of new machines are available, and we must make the present equipment last.

All modern sprayer pumps are built for hard, continuous use, but long life is not realized unless they are properly cared for. It is important that operators look over their machines carefully and secure the necessary repair parts to put the equipment in first-class condition. Much time and effort will be saved if the equipment is put in shape before it is stored for the winter. Special attention should be paid to the power unit to get maximum life with minimum cost of operation.

Norman Armstrong, White Plains, N. Y., discussed several angles of emergency service for trees damaged by ice, wind and lightning. Among the points mentioned were methods of resetting trees blown over by windstorms, proper cabling, pruning, surgery and feeding. Most trees, with the exception of some evergreens, can be reset satisfactorily.

Rounding out the afternoon program were discussions on wartime maintenance of parks, parkways and other public areas, by F. E. Karpick,

assistant forester, department of parks, Buffalo, and unusual activities during wartime, by O. W. Spicer, of the Bartlett Tree Expert Co., Stamford, Conn.

Postwar Arboriculture.

The Thursday morning session, August 31, proved to be one of the highlights of the conference. Three discussions were devoted to arboriculture during the postwar period. Headlining the session was the talk on "Postwar Economic Development as It Will Affect the Arborist," by J. K. Horner, assistant to the president, Babson Institute, Babson Park, Mass. Mr. Horner, who is also on the faculty of Northeastern University, Boston, presented some interesting information.

In the postwar period our economic system will face its most crucial test, he said. It will survive or perish on the issue of whether we can find jobs for at least 55,000,000 persons, because America will no longer tolerate mass unemployment. This is about 9,000,000 more persons than were employed in 1940.

In the immediate postwar years there is reason to believe we can employ this number of persons productively because of the huge backlog of consumer and industrial demand for goods which have been off the market during the war. The purchasing power to motivate this demand will also be adequate because of the unprecedented fund of savings, in excess of $100,000,000,000, which the people will have accumulated by the end of 1944. Not all of these savings will be spent, but it is unthinkable that people will not use part of their savings for needed homes and equipment. Thus for a short time after the war the normal demand of living, supplemented by the backlog of war-born shortages and supported by adequate purchasing power, is almost certain to provide the economy with a boom capable of maintaining a necessary high level of employment.

This boom will possibly last from three to five years, with the odds in favor of the shorter period. After we have liquidated the backlog, then will come the real danger period, when it will be necessary to put on the heat to employ 55,000,000. Undoubtedly there are hundreds of new products which could provide thousands of jobs if venture capital will provide the needed development. But high taxes tend to discourage the flow of risk capital in new and small businesses. Consequently, businessmen in general believe that reduction in taxes is essential to provide the incentive for business growth and expansion sufficient to support a high level of employment.

We cannot avoid a postwar federal budget of less than $20,000,000,000 and more likely an average in the next decade of $24,000,000,000. Either we pay for these expenditures by taxation or we continue on the road to deficit financing. The latter policy would tend to discourage business and the flow of capital; hence it would lead directly to the government's stepping in to provide the initiative and capital for sufficient business activity to maintain employment. This would probably mean the end of the American competitive system as we have known it and the beginning of the socialization of enterprise.

On the other hand, to balance the budget by taxation leaves little hope for any reduction in taxes. Except for repeal of the excess profits tax, it is doubtful if corporation taxes can be reduced much, if any. If the corporation income tax is reduced substantially, then there is no hope for much easing of personal income tax rates. The problem can eventually be solved provided the people do not lose faith and succumb to a philosophy that their problems can be solved by letting the government pull pink and red rabbits out of the economic hat. The greatest single danger ahead of us is possible unwillingness of the country to face the facts concerning the federal budget and taxation.

Ralph E. Griswold, superintendent of parks, Pittsburgh, Pa., presented an interesting discussion of "Tree Planting for Postwar Memorials." It is generally conceded that trees are suitable war memorials. Mr. Griswold emphasized the necessity of promoting the planting of trees aggressively, gave several suggestions as to appropriate uses for memorial tree planting, discussed ways and means for encouraging and financing such plantings and developed a plan for endowment to insure permanent maintenance.

In closing the morning session, Dr. Curtis May, senior pathologist, U.S. D.A., gave his opinions of "Postwar Shade Tree Disease Research." Dr. May has recently been appointed to head all work in the United States Department of Agriculture dealing with shade tree diseases. Dr. May outlined plans for postwar tree disease studies. He mentioned several problems that seemed most pertinent and suggested some methods by which such problems could be solved. The breeding of disease-resistant trees holds considerable promise. Disease surveys were suggested and some regional studies proposed. The seriousness of the phloem necrosis disease of elms in the Ohio river valley was mentioned, but little hope was given that the problem would be solved in the near future.

Pest Problems.

Dr. John T. Creighton, of the department of entomology, University of Florida, presided over the afternoon session, dealing with insect and disease problems. The first discussion dealt with insecticides and fungicides for the postwar period. L. S. Hitchner, executive secretary of the Agricultural Insecticide and Fungicide Association, mentioned some points about the industry and major insecticide problems.

Arboriculture is bound to become more and more important as we return to normal. Three or four large shade trees can easily add a thousand dollars to the value of a small piece of real estate. In a recent survey conducted of several thousand private households, forty-five per cent planned increases in their ornamental tree plantings.

The supply situation has been a little better the past year and should continue to improve gradually. More arsenicals should be available. The copper, oil, cryolite and sulphur materials should be more freely available. Government controls are being gradually removed. Rotenone and pyrethrum are still tight and will be until after the war, but their prospects after that are good. Nicotine just now is tight; it is impossible to give a nicotine forecast at this time. Labor is still critical. Transportation cannot improve for some time. Arborists are urged to check up early on what they need and what is available, and discuss delivery schedules with their source of supply.

Looking ahead for eighteen months, Mr. Hitchner said it would seem that education and publicity are urgently needed to increase the use and appreciation of trees and shrubs and to stimulate protective interest against insect and fungus. We now have a committee studying the problem from an educational viewpoint.

Every new insecticide and fungicide has to run a gauntlet. First of all, the new material must kill some insect or plant disease. Then we must know what possible dangers it may offer to the plants, or even eventually to the soil. Then there is the problem of getting the material into the right physical and chemical condition for applying under diverse conditions. There are questions of availability and suitability, of compatability with other materials, and of either fitting the material to present spraying and

[Continued on page 38.]

New Yorkers Meet at Cornell

By A. M. S. Pridham

The department of floriculture and ornamental horticulture of Cornell University was host to 120 members of the New York State Nurserymen's Association at the summer meeting held August 31, at Ithaca, N. Y. Visiting nurserymen included J. J. Grullemans, Wayside Gardens, Mentor, O.; Thomas B. Kyle, Tipp City, O.; Russell C. Jacobus, Cedar View Farms, Upper Montclair, N. J., president of the New Jersey Association of Nurserymen.

Directors of the New York state association met August 30. Howard Taylor, Eastview, presided. H. W. Maloney, Dansville, vice-president, and Dr. Harold Tukey, Geneva, secretary-treasurer, were present, as were the directors, V. C. Curtis, Callicoon; Leslie MacRobbie, East Patchogue; Donald Brown, Rochester; R. L. Holmes, Newark, and L. C. Engleson, Newark.

The meeting August 31 was opened by Dr. W. I. Myers, dean of the New York state college of agriculture, who congratulated the nurserymen on the recent formation of their state-wide organization and on the vigorous program the association has followed. In reviewing present-day developments, Dean Myers stated that he looked forward to the further extension of the service of the college to the people of New York state by a broader program in floriculture and ornamental horticulture. He further stated that developments along this line had received consideration and he welcomed this opportunity for further discussion with the nurserymen on the development of such a program.

Registration was proceeding briskly when a busload of nurserymen arrived from Newark, representing C. W. Stuart & Co. and Jackson & Perkins Co., and a second large contingent came from Dansville, representing Maloney Bros. Nursery, Kelly Bros. Nurseries, C. W. McNair Nurseries and George L. Rogers & Sons.

Landscape Planting.

Thomas J. Baird began the program with a discussion on experiences in landscape plantings for small modern properties. He opened his discussion with a demonstration in which the audience took part and which involved the placing of units in a design. This was repeated, using a model house and model plant materials. The test indicated that when plant materials are used the tendency is to crowd them against buildings and to lose the space relationships that are evident to most persons in the normal arrangement of units in a pleasing design. Mr. Baird then used sketches to illustrate these principles as applied to simple landscape design, which is effective because of the simplicity and feeling of spaciousness that resulted in the appropriate arrangement of the plant materials. Mr. Baird is actively engaged in postwar planning of rural properties as a member of the advisory committee for rural housing research.

Opportunities and responsibilities in postwar landscape service were discussed by Prof. J. P. Porter. He dwelt on two items particularly. The

Joseph P. Porter.

first is the trend of many war workers in purchasing rural homes rather than city dwellings. He said that this trend is so well established that it may be regarded as offering a definite change in the landscape requirements for small properties.

Professor Porter also pointed out the opportunity and responsibility of nurserymen in encouraging the planting of hospitals and of recreational camps for returning veterans. In many instances adequate landscape design is not provided in the erection of these buildings, and much could be done to improve the surroundings and speed the recovery of these returned men by furnishing a more attractive and suitable environment. Professor Porter pointed out that in some hospitals this has already been done and that courses in gardening are offered to disabled veterans so that they may be rehabilitated at an early date.

The interesting talk by L. G. Cox on recent experimental results illustrating opportunities for cooperative research in the Cornell Plantations is published on a following page.

Research Problems.

Dr. A. J. Heinicke, director of the New York state agricultural experiment station at Geneva, discussed research on nursery problems. Dr. Heinicke opened his discussion by establishing the point of view of the research worker and experimenter in attempting to solve a problem. Emphasis was placed on the need to estimate correctly the true situation in any particular problem and to develop facts that will lead to the establishment of the correct reasons for a particular result. In this way general truths may be established first as theories and then proved by experimentation which constitutes definite and reliable evidence in the solution of problems.

Change in public demand constantly creates new problems in the nursery industry. To solve such problems requires research in plant breeding, plant culture, soil relationships and many related fields.

Results of recent research are opening new avenues of approach which may be followed to advantage in the solution of many problems in the nursery industry.

Pest Control.

Dr. W. E. Blauvelt, of the department of entomology of Cornell, spoke on new ideas in insect pest control. Dr. Blauvelt emphasized the fact that the nurserymen had a wide interest in the control of insect pests on ornamental plants not only in their own nurseries, but especially in landscape plantings of their customers, and that nurserymen may well advise their customers more completely on how to handle the plants that are used in landscape work. In many instances greater satisfaction would result if they would suggest the use of plants that are relatively free from insect pests. As an example, the Japanese snowball, Viburnum tomentosum sterile, is relatively free from infestation by aphis and might well replace the common snowball, Viburnum opulus roseum. Another instance cited by Dr. Blauvelt was that of the canoe birch, Betula papyrifera, to be used in place of the European white birch,

Betula pendula, because the latter is subject to attack by the bronze birch borer, so that most of the European birch trees in New York state have succumbed to the attack of this insect. English and Scotch elms are both subject to leaf miner injury and might well be omitted from planting lists and the American elm substituted in their place. Dr. Blauvelt cited a final instance with Irish juniper, Juniperus communis hibernica, which is subject to webworm and consequently unsatisfactory, while the Swedish juniper, Juniperus communis suecica, escapes serious infestation by webworm.

A second important suggestion was that nurserymen set up a spray program utilizing slack seasons insofar as possible in which to do their spraying. This possibility is made much more realistic with the use of the dinitrocresol compounds for use as dormant sprays to control aphis. Such dormant sprays kill the egg stage of this insect. The material can be applied in the late fall or early spring before outdoor work becomes important. Mild winter weather could also be utilized for this program, especially on Long Island.

A third suggestion by Dr. Blauvelt was the use of such materials as selenium compounds which are applied to the soil and taken up by the plant itself and, because of their presence in the plant tissues, help to control insect pests. This treatment is still in the experimental stage, especially for woody plants. Dr. Blauvelt pointed out that promising results had been secured on delphiniums, asters and phlox, which are subject to attack by cyclamen mite and red spider mite.

Dr. Blauvelt mentioned several other new materials used in the control of insect pests, especially DDT. Dr. Blauvelt stated that these materials have many points in their favor and preliminary results indicate that they are sufficiently important to warrant more extensive research. Progress in this line depends largely on the support given to projects of this nature.

Current Pests.

The morning session concluded with a report from Dr. A. B. Buchholz, director of the New York state bureau of plant industry, on insect pests of 1944. Dr. Buchholz stated that milky disease, resulting from bacteria used for the control of Japanese beetle, has given satisfactory results this year and the control of this insect in the future may not prove to be so troublesome as it has in the past. Dr. Buchholz also stated that the Dutch elm disease, though it has progressed somewhat, has been largely brought under reasonable control by the practice of cutting out diseased trees and other elms in poor condition as indicated by the presence of dead branches and thin growth in the top of the tree, a condition known as staghead. Dr. Buchholz pointed out that nurserymen have a definite responsibility in their own localities for encouraging the removal from streets, parks, private estates and home grounds such American elms as are not in vigorous condition. Nurserymen should also encourage the planting of young and vigorous stock and advise the public of the proper fertilization and pruning of such trees.

Business Meeting.

The business meeting of the association was opened promptly at 12:30, Howard Taylor presiding. Reports of the meetings of the board of directors

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were given by Dr. Harold B. Tukey and reports of committees were heard. Dr. Tukey spoke briefly of the recent developments at the station at Geneva. He introduced two new nursery workers, Dr. Charles Hamner, assistant professor, formerly assistant plant physiologist, U.S.D.A., at Beltsville, Md., and now actively engaged in research on nursery problems relating to the maturity, handling, storage and planting of nursery stock. Dr. Tukey also introduced Robert F. Carlson, investigator and a recent graduate of the University of Minnesota.

Inspect Experimental Work.

The tour of experimental work was led by the members of the department of floriculture and ornamental horticulture who acted as guides. Exhibits were set up in the laboratories, greenhouses and gardens in which the experimental work was proceeding.

The first demonstration was that of the technique of excising embryos from seeds under aseptic conditions. Preparation of disinfectants and of nutrient media was shown and also the equipment used. Cultures of cabbage, tree peony, German iris and snapdragon seeds were shown at several stages of development. The presence of inhibiting substances in certain seeds was demonstrated by insertion of tissue from the seeds into that of a germinating bean. The bean seedling became stunted as a result of the presence of an inhibiting substance. When the presence and location of an inhibiting substance are known, treatment can be given to remove the inhibitor and allow germination to proceed normally. The use of embryo culture technique thus has the advantage of a check on the type of dormancy present in seeds, and it also makes possible the actual culture of seedlings for further growth on normal media.

Soil Testing.

Soil testing was demonstrated by Joseph Rowland and Mrs. Iva Piper. Nurserymen were discouraged from attempting to use quick tests for testing their soils. Tests for soil acidity are useful guides and ought to be employed in any estimate of fertilizer requirements. Accurate methods of determining the amount of soluble nitrogen, phosphorus and potassium compounds in soils are available and depend largely on colorimetric analysis. The Spurway soil tests are used as a basis for the testing of soils at Ithaca. The equipment is expensive, and the chemical reagents used deteriorate rapidly with age and must be replaced at least every two months.

Facts derived from soil tests must be applied with due consideration to the past history of the soil, especially with reference to the crop and fertilizer program employed, since the test measures only the soluble nutrients present in the extracting solution. They do not measure the total content of nutrients in the soil. Only soluble nutrients are available to the plant. Mr. Howland recommended the use of a series of tests at several seasons of the year to be employed with a case history of the soil and crops as the best basis for predicting fertilizer needs.

Extension Service.

The third demonstration was that by Prof. D. J. Bushey, who called attention to the extension service in

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Results of Cooperative Research

By L. G. Cox

The Cornell Plantations, as a part of a well developed research program, can be considered as having a threefold purpose: (1) An inspiration for scientific investigation, (2) an outdoor laboratory for taxonomical, genetical and physiological studies and (3) a living demonstration of the results of a cooperative spirit of research.

The spirit of the Cornell Plantations is far broader in scope than a collection of plants for public display. It is typical of the Cornell tradition of freedom and responsibility in that it allows flexibility of action, yet at the same time demands a well thought-out, long-term research program devoted to the problems of study, research and education in botany, wild life and other forms of nature.

From the standpoint of the college interests in teaching plant propagation and in conducting research on the physiology of ornamental trees and shrubs the Cornell Plantations represent a rare teaching and research opportunity. However, we must not neglect the fact that the problems of selecting plants, their maintenance, and the integration of such a plant collection into a scientific and educational program require close cooperation between the plant scientists.

The development of new varieties of woody ornamentals involves problems in floral anatomy, pollen storage and germination, anatomy of embryo development, seed germination and storage, and vegetative propagation, as well as the procedures ordinarily utilized by the geneticist and plant breeder. Such problems are beyond the capacities of any single individual, but require the cooperative effort of the anatomist, cytologist, geneticist and plant physiologist.

An example of such problems that will undoubtedly occur in a long-term breeding program with woody ornamentals and that require an integration of effort among the cytologist, the geneticist and the plant physiologist is the breeding of irises. The delayed germination of iris seeds is a problem of major importance to iris breeders. The seeds are ordinarily planted in the autumn soon after they are harvested, and germination of a certain proportion of the seeds may take place the following spring or thereafter, at yearly intervals for several years. The seeds of certain crosses germinate well, while the seeds of other crosses germinate poorly, and some samples of apparently good seeds fail to germinate at all; such behavior not only greatly delays an iris-breeding program, but often results in the loss of one or more year's breeding work.

In an effort to improve the germination of iris seeds various experiments of an exploratory character were performed at Cornell over a period of several years, beginning in 1938. For these experiments a quantity of mature, open-pollinated seeds was collected, as well as seeds from numerous garden varieties. After being thoroughly air-dried the seeds were stored at room temperature in a dry place until ready to use, except in certain experiments involving freshly harvested seeds. Tests of various physical factors that might reduce the period of dormancy included drying for various periods of time, variations in storage temperatures, germination in media of different hydrogen-ion concentrations, exposure to light, removal of the endosperm, chipping, leaching and increased oxygen pressure.

The most successful results were obtained by removing the embryos from the seeds and culturing them on sterile nutrient agar. Embryos of freshly harvested, as well as air-dried, seeds which had been stored at room temperature for several months germinated within a few days after being transferred under aseptic conditions from the seeds to the nutrient agar, and within a few weeks seedlings with well developed roots and shoots suitable for transplanting to soil were obtained from approximately ninety per cent of the embryos. The remaining ten per cent either aborted or produced malformed, defective seedlings, which were subsequently discarded; rarely did normal-appearing embryos fail to germinate.

Seedlings produced by the excised embryo technique from crosses made in 1942 flowered in 1943, thus reducing to less than one year the interval from seeds to flowering, which normally requires from two to three years.

Of even greater significance to the breeder interested in the cytology and genetics of the iris is the fact that there is now available a relatively easy method of obtaining seedlings from crosses that are difficult to make and from crosses producing abundant seeds that may or may not germinate satisfactorily under natural conditions.

Inhibiting substances present in the mature seeds prevent further growth of the embryos and thus function to maintain the seeds in the dormant condition. Embryos of ripe seeds when completely detached from the endosperm, which contains the inhibiting substances, germinate promptly, but when left in contact with even a portion of it, their growth is inhibited or progresses slowly in an atypical manner. Treatments such as storage of seeds for a period of several weeks at near-freezing temperature, chipping the seeds so as to remove the cap of tissue covering the radicle of the embryo, increased oxygen pressure applied to chipped seeds and leaching increased germination only slightly. The results indicate that the inhibiting substances are highly stable compounds, relatively insoluble in water, and not readily diffusible from the region of the embryo.

Another illustration of a problem common to any long-term program and requiring the combined efforts of the departments of plant breeding, botany and floriculture is to be found in an unusual type of seed dormancy which occurs in a certain variety of cabbage seeds, thereby delaying the use of this variety in a long-term cabbage-breeding program. Normally, cabbage seeds germinate promptly and the seedlings can be forced to flower and seed, thereby producing at least one generation of cabbage each year. With the Danish variety and certain other types, germination may be slow and delayed for such a long period that it is necessary to store the seeds for one year after harvest and to plant them the next season, thereby prolonging the production of each new generation for two years.

An investigation of this type of dormancy by means of the embryo culture technique revealed that an inhibiting substance was present in the seed coats. This retarding factor could be eliminated either by peeling off the seed coats under aseptic conditions and germinating the embryos on sterile nutrient agar or by a more practical method involving the destruction of the cells of the seed coats by

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"Recent Experimental Results Illustrating Opportunities for Cooperative Research in the Cornell Plantations," by L. G. Cox, presented at the meeting of the New York State Nurserymen's Association, at Cornell University, August 30.

means of a short treatment in cold, concentrated sulphuric acid, followed by an overnight leaching in tap water, thereby removing the inhibiting substances which had been made soluble by this treatment.

Either freshly harvested seeds or seeds which have been stored for a considerable period of time can now be acid treated, leached and planted in the greenhouse and be expected to germinate promptly and uniformly with a high percentage of germination.

The opportunities for research of this type applied to the Cornell Plantations are practically unlimited, and some research has already been started. The development of new varieties of ornamental shrubs and trees has been limited by lack of information on pollen forcing, pollen storage, seed dormancy and vegetative propagation. For instance, many new and interesting varieties of tree peonies could be produced by plant breeders if the seeds could be forced into germination immediately. Investigations now being conducted on tree peony seeds reveal a complicated type of dormancy, the practical solution of which is still being sought. So far, the embryo culture technique has revealed an inhibitor in the storage tissue of the endosperm and a pronounced embryo dormancy. The embryo dormancy is of two types, dormancy of the radicle and dormancy of the apical bud. Excised embryos when placed on nutrient agar remain quiescent for two or three months; the radicle then germinates, but the apical bud still remains dormant for a considerable period of time. This same condition has been observed in the seedbed and is responsible for a dormant period of two to three years. A breeding program involving such a species is therefore limited by this prolonged dormancy.

Any study of the physiological factors affecting vegetative propagation has likewise always been complicated by the presence of bacteria and fungi, most of a harmful nature, but others of a neutral or even beneficial nature. The aseptic-tissue culture technique is now being applied by Prof. A. M. S. Pridham, of the department of floriculture and ornamental horticulture, to the problems of propagation by bud cuttings, stem cuttings and seedling grafts in anticipation of applying the results to the vegetative propagation of new varieties developed in the Cornell Plantations.

As an interesting sidelight on the cooperative spirit of Cornell, the departments which have already contributed equipment and technical assistance to this type of research should be mentioned. Dr. Harold B. Tukey, of the department of pomology at the experiment station at Geneva, originally developed the particular embryo technique now in use at Cornell and has given valuable advice as the work progressed. The department of forestry provided the financial aid of a graduate assistantship and much equipment during the early stages of the iris work. The department of botany provided

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Winter Storage of Evergreens

By Vernon Marshall

After the extreme difficulties experienced during the past spring in the digging and handling of balled and burlapped evergreens because of the shortage of labor and an excessive amount of wet weather in most areas, the matter of fall digging and winter storage of evergreens assumes new importance.

It is our experience that we have more time and more help to dig evergreens in the fall than we are likely to have in the spring. Also, where shipments are made into territories south of our nursery location, Arlington, Neb., it is desirable to make shipments before the frost is out of the ground and evergreens are in prime condition to dig. For this reason we have for several years been digging all of the evergreens which we could get into a rather small storage during the latter part of November or fore part of December and storing them through the winter in order to have them available for early shipments south in the spring.

These evergreens go into the storage with a bright color and come out in the spring looking just as well as when they were dug, whereas trees standing in the field are often badly winter burned and do not look presentable, at least for early digging in the spring. The cellar in which these trees are stored is about four feet underground, with dirt floor, brick and concrete walls, and is banked up on the outside the full height of the walls, with an insulated roof.

Just prior to storing, the floor is thoroughly soaked down and shingle tow is screened out so that only the finest part of the shingle tow is used for packing. The trees are balled in the usual way and are set on about two inches of wet shingle tow and are spaced far enough apart so that shingle tow may be packed in between and around the ball on all sides. This packing is carried well up over the top of the ball, care being used, however, to see that it does not get up into the lower foliage of the tree. We have found it important, also, that the trees be not crowded so closely together that the foliage overlaps between trees, as if this happens there is some deterioration of the foliage where it touches.

This building is not frostproof nor do we make any effort to heat it, and normally there is considerable frost in this wet shingle tow, which, however, does not penetrate over two or three inches from the top.

We have successfully stored trees in this manner for the past eight or ten years, but find that some varieties of evergreens do not keep well, such as the pines, spruces and even firs. All junipers seem to store equally well. We have not had experience with arborvitae, but would think they should do reasonably well. Aside from the fact that shipments can be made earlier than would otherwise be the case, these trees come out of storage bright in color and looking as fresh as they would in the field several days or even weeks later, which is a big factor in retail delivering.

We are now planning an additional storage house which will increase our capacity and we hope to have it constructed in time to fill it up this coming fall. We have carried evergreens stored in this manner clear up to June 1 or even later. We have experimented with them by planting them out in test plots to see what difference, if any, was due to storing, and we find that the survival seems to be fully as good as with freshly dug stock when the evergreens have been well stored and kept sufficiently wet.

The matter of moisture is of considerable importance, and should digging conditions be dry, we dip the balls in water before storing them so that they do not dry out too much during the winter months. If this is done and there is plenty of moisture in the packing material, we have no difficulty in keeping them in good condition.

Some Opportunities in Hardy Bulbs

By C. W. Wood

The mention of hyacinths brings to mind the highly bred, highly fed prizes of the florist and window gardener, all well in their places, but scarcely ornaments for the informal garden. But they (garden varieties of Hyacinthus orientalis) are not all there is in the genus. For instance, there is the lovely alpine hyacinth, H. amethystinus, from mountains in Spain, from whence it was introduced into English gardens almost two centuries ago. One would think that so lovely a creature that is, at the same time, of amiable disposition would long ago have won its way into the affections of every gardener, but it takes long and careful search to find the variety at all. That is an unfortunate situation, and it is a problem capable of solution if a few growers would take it upon themselves to supply the stock. That would not be a difficult matter, either, for the bulbs increase by division at a pleasing pace and the plants may also be grown from seeds, though they are tardy in reaching a flowering stage (usually three or four years) from seeds.

Everything about the plant, from its gracefully arched stems, loosely hung with blue or white bells, to its habit of flowering after one ceases to expect a performance from hardy bulbs, is ingratiating. And its sturdy constitution (sturdy at least for a Spaniard under northern conditions) merely adds to its value. I have planted the bulbs in north Michigan about four inches deep and as much apart, choosing by preference light soil in partly shaded spots protected from cold winds.

On the other hand, the other hyacinth (H. azureus) that one is likely to meet in gardens opens the spring procession of hardy bulbs, coming in with the snowflakes and often seeing the last snowdrop flowers. Azureus lacks the grace of amethystinus, being more squat (not over four inches tall), with bells closely set around the stiffly erect spike. The color is a glorious sky blue. The behavior is all one would expect of a Mediterranean plant. Here in nothern Michigan it has been hardy and long-lived if given well drained soil in full sun.

Generally speaking, the bulbous irises are something of a gamble in this climate, though not so much so as we usually think. The ones that normally make foliage during the fall rains are sure to be lost if they are not dug as soon as the foliage matures in early summer and replanted in autumn so late that they do not have time to grow before winter sets in. These include the popular Dutch, Spanish and English varieties. I suspect it is best for northern growers to leave their propagation to a better favored locality, one that has mild winters, plenty of moisture in spring and then a summer baking period. The I. reticulata group, including the type, histrioides, histrio, bakeriana, vartani (not hardy here) and danfordiae (not reliable here), should prove valuable even this far north, if they can be given frame culture. That would not be necessary because of tenderness to cold (all are hardy here with the exceptions noted), but rather for an easy way to keep them perfectly dry while they are dormant. In the open without special care the irises are unpredictable, according to behavior here. With everything apparently equal, for instance, some plantings have lasted for years, increasing in size and beauty from year to year, while others disappear after the first year. But ones protected by sash after the foliage dies are not only permanent, but give fairly rapid increase in most cases. It is probably not necessary to describe the different forms, but reticulata is well known, and the varieties differ more in size of flower and season of blooming than they do otherwise. That excepts danfordiae, of course, which is brown-spotted yellow instead of the blue to violet of the others.

The Juno section of irises contains much of promise to American gardens, though I can say little in the way of encouragement from my own experience. The few that I have grown have struggled along for a few years, behaving somewhat like neglected reticulatas by flowering sparingly after a hot dry summer and finally losing all interest in life. I have not had time to try them after the schedule outlined in the next preceding paragraph for the reticulata group, but suspect, from their behavior, they would be amenable to that treatment. There are stocks of several kinds, including the lovely sea-green I. persica, in this country. So one could experiment with them as one saw fit.

Although the sand lily, Leucocrinum montanum, does not possess the flaunting beauty of the crocus, to which it has been compared by some writers, it has several endearing qualities, including an appearance in early spring when any flower, no matter how unassuming it may be, is appreciated. The foregoing is not meant to damn the plant by faint praise, but rather to keep on the middle ground between the overenthusiastic (Farrer wrote of it, "the apple of the eye should not be more cherished") and those who call it a dud. And I think I am right in assuming this middle position, for the plant has much merit not now fully recognized. For instance, it has the ability of thriving on a small amount of moisture after the spring supply has been exhausted by the heat of summer, for the plant is then dormant and needs little moisture. Its disappearing act, which is also a part of the performance of all spring bulbs, is in fact its worst fault. It means that one must make some provision to clothe the space left bare by its passing, and if the sand lily is used in fairly broad masses, as it should be for landscape effects, that calls for a generous supply of shallow-rooted annuals. The sand lily flowers are white, funnel-shaped, stemless (much of the tube being below the surface), and are abundantly produced in early spring. A sandy well drained spot in full sun seems to be the sum of its desires.

My interest in snowflakes, leucojums, aside from the usual interest of a gardener in any lovely flower, was aroused about fifteen years ago by some notes in the National Horticultural Magazine by B. Y. Morrison. I believe I can do no better than quote briefly from that article by way of introducing the subject here. "So far," he wrote, "I have been able to find only two of this genus offered in the American trade, LL. vernum and aestivum. And they are really the other way around, for when one orders L. vernum one will always get L. aestivum, which is the less desirable. At least that is what has always happened to me, as seven lots of bulbs will bear me out. I only discovered that vernum was the aestivum of American trade lists because I made a complaint when I got my last lot of bulbs and in reply the dealer sent me one little bulb which he had listed as aestivum with the request that I try it and report to him which was which. And it turned out to be the long sought after vernum. Now the mis-

take is wholly inexcusable, for the bulbs are quite different; that of aestivum much larger and of a wholly different shape—an ovoid bulb from one inch to one and one-half inches in diameter, and it looks much like a small daffodil bulb, whereas those of vernum are round and only seven-eighths of an inch in diameter and could never in the world be taken for a bulb of a narcissus. The plants themselves are wholly different; vernum blooms in early April or late March 'as the snowdrops are passing over' and is never taller than ten inches, in the type, and never in the typical form is there more than one blossom to a stem. Aestivum does not flower until a month later and is taller, from fifteen to eighteen inches, and carries several flowers to a stem and the individual flowers are smaller than those of vernum; also the foliage is quite distinct in that it is of quite a yellow tone of green seldom seen in bulbous plants."

This is so clear a presentation of the differences between the two species that it should clear up the matter in American Nurseryman readers' minds. The trouble in securing correctly named stock complained of by Mr. Morrison still persists, though it seems not so prevalent as it was then.

Although the summer snowflake, L. aestivum, is tolerant, it can be killed by indifferent treatment, and it is never at its best except under certain conditions. These include a moist soil, as along a stream bank or on a springy slope, and preferably afternoon shade. It multiplies rapidly under good growing conditions.

I cannot speak from experience of its variety Gravetye Giant, which is said to be a cross between the summer and the spring snowflakes, though more robust than either. I have had and lost, probably because of lack of hardiness (it is said to come from the Mediterranean islands off the coast of France), without much mourning a species, L. pulchellum, which is evidently close to L. aestivum, differing mostly from the garden standpoint in blooming earlier. Its greatest value, where it is hardy, would be as a connecting link between the flowering periods of the spring and summer snowflakes.

To my way of thinking the spring snowflake, L. vernum, is the queen of the race, being easier satisfied in my dry garden and better loved because of its early flowering. Here it does best under the conditions recommended in an earlier number of this series for snowdrops and there self-sows after being thoroughly established. It does not multiply so rapidly as aestivum and must therefore remain less plentiful and more expensive.

The spring snowflake has varied into at least two forms, varieties vagneri and carpathicum, one with the typical green tips replaced by yellow. The authorities consulted do not agree on which name should represent the one with yellow tips, but that makes little difference to the gardener when he can buy by description. All the snowflakes, except the Robinson variety, Gravetye Giant, were available from Dutch nurseries before the war and no doubt will again appear when peace returns.

I wish that I could draw on my experience for a note on the three or four rare Mediterranean species which are spoken so highly of by English gardeners, but my attempts at cultivating these snowflakes have met with no success. About the only way to get them at all is by way of seeds, and seedage of tender snowflakes in this cold climate is attended by many difficulties. Among them is the autumn snowflake, L. autumnale, a fragile, tender plant from Portugal and Morocco, that hangs out one, two or rarely three white (tinged red, according to the Cyclopedia of Horticulture, and with a pink base, according to Bowles) snowflakes in August, the threadlike leaves appearing during the blooming period. The books give the height of the scape as three to nine inches, while gardeners say about six inches. I have seeds of this variety this year from a soldier friend in north Africa, so may be able to report on it later.

A species of restricted range (on limestone cliffs of the Maritime Alps) is L. hyemale; it is also rare in gardens. Although the description of pure white snowflakes on foot-tall stems, amid yellowish-green leaves, sounds exciting, I should not exert myself too strongly to protect it from the few, if any, degrees of frost which are said to kill it. The other, L. roseum, a Corsican and probably as tender as the next preceding, would surely be something worth working for—rose-colored snowflakes on 4-inch stems. These last three have been included in these notes for the benefit of southern growers, who should find them of value in attracting attention to their offerings and of course as sales items when available in quantities.

I hope that in my next incarnation plant names will have become sufficiently stabilized to save the old head so much work. When I commenced to write about lilyturf something told me that I should consult a late authority to check on the name of the plant that I have long called, on which I thought good authority, Liriope graminifolia densiflora, and sure enough Hortus tells me that that plant should be L. muscari and the one which I formerly knew as L. graminifolia should be L. spicata. The first of these, L. muscari, well named because its flowers and inflorescence are suggestive of a grape hyacinth, possesses more than a little garden value despite the disparaging remarks recorded about it. It is true that the plant lacks flamboyant beauty and probably would not be noticed if it bloomed in June, but from the middle of September until frost one does not examine his flowers with a too critical eye. As a result the big blue lilyturf, with its tufts of long (to fifteen inches) grasslike evergreen leaves and scapes (to about the same height) of small violet-blue flowers, is sure to be a welcomed guest in any garden. Although a native of China and Japan, it is hardy this far north, if given a protected spot. It seems happy in either full sun or part shade and is propagated from divisions, preferably in spring. There is also a variegated form, var. variegata, with leaves striped yellow, which adds a pleasing lightness to the fall garden. Variegata appears to be a little less sturdy, winterkilling at times when the type comes through unscathed, but that may be pure fancy on my part or because of some local condition; anyway, I hear no mention of this variety in other quarters.

[To be continued.]

G. H. HARRISON MARRIES.

G. Hale Harrison, manager of Harrison Bros. Nurseries, Berlin, Md., will be married Saturday afternoon, September 16, to Miss Lois Evelyn Carmean, daughter of Mrs. A. M. Carmean, at the Stevenson Methodist Church, Berlin.

EDWIN C. TYSON, Flora Dale, Pa., who at one time operated the biggest orchard supply business in the east, celebrated his eightieth birthday August 28. Besides running his garden as well as his office, Mr. Tyson is as active as ever in community affairs and Friends' meetings.

Dr. D. B. CREAGER, for the past five years research pathologist of the Illinois Natural History Survey, at Urbana, Ill., left to become plant pathologist at the University of Florida experiment station, September 1. He is stationed at the vegetable crops laboratory, at Bradenton, where he will specialize in diseases of gladioli, a specialty he undertook in Illinois.

Test Spectacular New Insecticide

A chemical formula which lay dormant for almost seventy years in the reports of the German Chemical Society has come to life as the progenitor of a spectacular series of insecticidal preparations. Recent official announcements of the effectiveness of one DDT composition (Neocid) in eradicating typhus in Italy and elsewhere have brought this marvel of chemistry to public notice.

DDT compositions used by the army are required by the military and naval forces in such tremendous quantities that for the time being none is available for civilian use.

DDT, popular symbol for dichlorodiphenyltrichloroethane, now the active ingredient for these amazing compositions, was synthesized in 1874 by a young German chemistry student, Othmar Zeidler, at Strasbourg.

Several years ago, in the testing of a number of formulas, Paul Muller, scientist for J. R. Geigy, Basle, Switzerland, synthesized the product and discovered its amazing insecticidal properties.

Shortages of the accepted insecticides, arsenates, pyrethrum and rotenone, further encouraged the investigations which have revealed DDT compositions as the outstanding development in the insecticide field for many years.

Its insecticidal values officially established, Geigy's marketed Gesarol (pronounced "Jesarol") in Switzerland. Some of the Swiss pests successfully attacked are also found in the United States, among them species of aphis on apple, the codling moth, cherry fruit fly, imported cabbage worm, cabbage looper, species of flea beetles, thrips, grape-berry moth and raspberry fruitworm.

When the United States entered the war, Geigy's, New York, imported 100 kilos of the active ingredient, DDT, the greater part of which was donated to the Department of Agriculture. Thereafter, the department's experts undertook tests in experimental stations all over the United States.

All this experimental work in the United States has been carried on without the slightest thought of discounting the magnificent research done in Switzerland, but it must be remembered that results obtained by an insecticide in one part of the world are not necessarily duplicated in another part of the world. Indeed, results obtained in Maine may be different from those obtained in California on the same type of insect. As experiments develop, disease-preventing possibilities come to light.

Walls and ceilings covered with a Gesarol spray remain deadly to flies for three months, according to report. Dairy cattle made nervous by flies have been quieted by sprayings of the compound.

Effective on Many Pests.

It has been indicated by field tests conducted by the United States Department of Agriculture and collaborating entomologists that DDT compositions, Gesarol sprays and dust, are successful against such garden pests as the Japanese beetle, thrips, tomato fruitworm, plant lice and the three important cabbage worms. In attacking the Oriental fruit moth, peach damage has been reduced from sixty to ninety per cent compared to unsprayed trees. Gesarol dust controls the white apple leaf hopper, gives excellent promise against the apple maggot and has shown splendid results in preliminary efforts against the codling moth, enemy No. 1 of the apple orchard. Whereas (from three to ten) substantial applications of arsenate of lead are required to combat the codling moth, Gesarol is needed only in relatively small quantity and applied much less frequently.

Gesarol dust completely protects against the Colorado potato beetle and takes care of the potato leaf hopper, the tarnished plant bug and aphis. Insects attacking peas, celery and other crops have been controlled.

Some of the most spectacular results thus far obtained are control of the corn-ear worm. Good results have been obtained against the European corn borer.

Both Stomach, Contact Poison.

Like the natural products, pyrethrum, rotenone and nicotine, commonly used as insecticides, DDT compositions are poisonous on contact by common insects, paralyzing an insect's nervous system and giving it what has been called the "Gesarol jitters."

These natural products, pyrethrum, rotenone and nicotine, however, lose their strength in a short time after application to the plant.

Lead arsenate, Paris green and other inorganic stomach poisons hold their effectiveness indefinitely. The insect must eat the poison if it is to be killed. But certain insects, like plant lice, do their feeding by sucking the sap within the plants and so do not swallow the dust or the spray residue left on the outside of the plants. For these there must be an insecticide that will kill on contact.

To insects Gesarol is both a stomach and contact poison, a unique characteristic. So far as entomologists are concerned, this is a sensational circumstance. Of 3,000 synthetic organic insecticides tested by the Department of Agriculture, only two were found to possess both contact and stomach lethal qualities, sodium fluoride and DDT.

Not an Ovicide.

Fumigation and egg destruction, which are other general methods of insect control, are not so convenient and direct in action as the spraying and dusting with DDT compositions. Incidentally, DDT compositions have no ovicidal value (do not kill eggs), but the effect of these compositions is so lasting that the insect is killed as it is hatched.

The toxicity of Gesarol and Neocid preparations to man and animals is still under investigation by the United States Public Health Service, the Food and Drug Administration and the Kettering Laboratory of Applied Physiology of the University of Cincinnati.

Research goes on. Indeed, considerable research is still necessary to determine all the possible uses and ineptitudes of DDT compositions. The forms and methods of application, the rates of application and the dosages on specific plants and in specific climates must be settled.

U.S.D.A. Cautions.

While much publicized as a louse powder and fly spray, DDT is not a universal insecticide, effective for all agricultural purposes, the United States Department of Agriculture warned recently.

"We receive many requests for supplies of DDT and for information about it," Dr. P. N. Annan, chief of the bureau of entomology and plant quarantine, said. "DDT is not now available for civilian use. While it appears to be very promising for future control of many insect pests, many of the experi-

ments to test its effects on insects, plants and higher animals are still in preliminary stages. Later tests may change the entire picture materially. Our entomologists have not had large enough supplies available to make large-scale tests. Consequently, we are not in a position at this time to recommend general use of DDT as an insecticide for agricultural purposes."

Tests for agricultural uses of DDT are being conducted in a number of laboratories by the bureau of entomology and plant quarantine with the small amounts of DDT now available for experimental purposes. Preliminary tests to date tend to show that DDT is one of the most effective insecticides known against such harmful insects as the gypsy moth, which defoliates and kills trees in large areas in New England; against the codling moth, the chief orchard pest, and against many others reported widely in the popular press and magazines.

WINTERING STRAWBERRIES.

Studies of the causes of winter injury to strawberry plants, reported by W. G. Brierley and R. H. Landon in bulletin 375 of the Minnesota agricultural experiment station, show that light frosts check growth and respiration and develop resistance to cold. The danger point for fully hardened plants lies close to 21 degrees and the killing point is close to 10 degrees. Of varieties grown locally, Burgundy proved hardiest, but Beaver, Dunlap and Premier are dependably hardy at 21 degrees. Everbearing varieties are somewhat less hardy than June bearers. Dormant plants showed no injury from smothering when sealed in tight containers for four weeks at 27 degrees, but were killed in seven weeks. Dormant plants survived for ten weeks or longer when sealed in ice. Ice alone was not harmful at temperatures slightly below freezing. Injury to plants sealed in ice appeared to be associated with low temperatures, excess water on thawing, or to temperatures slightly above freezing while closely confined.

Three inches of straw mulch supplemented by snow usually protect against low temperatures. Mulching at the proper time is more important than ability of plants to endure cold. Plants need to be hardened by several light frosts before mulching. Plants mulched too early often bleach beneath the mulch and fail to harden. Late-mulched plants may be injured before protected. In early spring, growing plants endure exposure to 27 degrees with little injury.

New Books and Bulletins

FRUITS FOR HOME GARDEN.

"Fruits for the Home Garden," by Dr. U. P. Hedrick, retired director of the New York agricultural experiment station, just published by the Oxford University Press, at $3, can certainly be considered authoritative on account of its authorship, and yet is so attractive in its presentation that the tyro in fruit growing will not find it formidable. It is a book of 184 pages, illustrated with sixteen full-page halftones and thirty-one line drawings.

Intended to introduce the amateur to home fruit gardening, it gives a sufficient amount of information as to location, propagation, planting care, pruning and pest control so that the reader can follow simple instructions intelligently. Successive chapters are devoted to the apple, pear, peach, plum, cherry, grape, bush fruits, bramble fruits and strawberry, in which the specific requirements of each are discussed and the leading varieties are described.

The nurseryman who is asked to recommend a book to an amateur trying fruits on his home grounds cannot do better than name this work.

BOTANICAL HISTORY.

The biographical method of narrating the history of American botany was initiated in his life of John Torrey by Andrew Denny Rodgers III. The latter part of the nineteenth century and the early decades of the twentieth century are covered in "John Merle Coulter, Missionary in Science," just published by the Princeton University Press, at $3.75.

While Dr. Coulter's name is associated with the University of Chicago, he gained early fame at Wabash College and was president of Indiana University and later Lake Forest College before establishing the department of botany in Dr. Harper's institution in 1896, at the age of 45.

At Wabash he had established the Botanical Gazette, which he fostered throughout his lifetime. Through his efforts, the science of botany made great enlargement, its various branches receiving increased attention in research and publication. His organizing genius and his natural leadership won him recognition from the scientific associations that grew up in his lifetime.

Late in life Dr. Coulter was instrumental in preparing the plan for the Boyce Thompson Institute of Plant Research and retired from teaching in 1925 to become its chief scientific adviser, moving to Yonkers to spend the last three years of his life there.

While the story of Dr. Coulter's life is a fascinating story in itself, the book is still more valuable for its side excursions into the lives and works of other botanists of the time, achieving historical scope.

FRUIT GROWING IN MEXICO.

Ninth in the foreign agriculture reports prepared by the office of foreign agricultural relations of the United States Department of Agriculture, "The Fruit Industry of Mexico," by Fred A. Motz, fruit specialist in that office, and Lester D. Mallory, agricultural attaché with the American embassy at Mexico City, presents a thorough picture of fruit production in that land.

Because of the wide variation in altitude, as well as its considerable area, Mexico provides locations for many sorts of fruit, from the deciduous kinds of the temperate zone to the varieties of the tropics. Illustrated by many pictures and maps, the 184 pages of this report carry interesting reading to those studying Mexican agriculture and a great amount of information for those who might be concerned with the commercial production of fruit there.

PEST CONTROL HANDBOOK.

For nurserymen and commercial plant growers of the state, the Arkansas plant board has issued a handbook of pest control, circular 2, compiled by Paul H. Millar, chief inspector. In twelve pages, 9x12 inches, are covered the important insect pests and diseases on nursery stock and vegetable plants, with brief instructions as to their control. Also included is similar information regarding trees and shrubs for the benefit of commercial sprayers, tree surgeons and termite operators. References are given in some cases to bulletins and books for fuller data. With assistance such as this from his state regulatory officials, the nurseryman has definite guidance in keeping his plantings clean.

BULLETINS RECEIVED.

Circular 158 of the Connecticut agricultural experiment station, New Haven, issued under date of March, 1944, gathers in forty pages the

laws and regulations concerning the inspection of nurseries in Connecticut and also the transportation of nursery stock to other states. A list of officers in charge of inspection and quarantine service in all the states is appended. This digest of Connecticut and federal regulations, together with those of other states, is useful to shippers.

"Plant Pest Law and Regulations," circular 642 of the New York state department of agriculture and markets, presents in forty-eight pages summaries of the regulations in that state and in other states with regard to the inspection and shipment of nursery stock.

"Pollination of Deciduous Fruits by Bees," by G. L. Philp and G. H. Vansell, circular 62 of the California agricultural extension service, Berkeley, is a 26-page pamphlet summarizing the results of pollination studies with deciduous fruit trees and pointing out some bee habits and structures, with special reference to the collection and storage of pollen.

"The Beach Plum, Its Written Record," by George Graves, is a reprint from the National Horticultural magazine of April, 1944. The twenty-seven pages present the historical data regarding Prunus maritima, with a bibliography occupying more than three of the pages.

"Alfalfa and Smooth Bromegrass for Pasture and Hay," by H. C. Rather and C. M. Harrison, circular bulletin 189 of the Michigan agricultural experiment station, discusses the advantages of bromegrass in combination with alfalfa and describes the methods of cultivation and management.

ORGANIZE AT DALLAS.

A dozen nursery firms at Dallas, Tex., were represented September 7 at a meeting at the E. E. Leverett Floral & Nursery, Dallas, to organize the Dallas Nurserymen's Association.

Mr. Leverett called the meeting to order, reading written suggestions on cooperation with the national association, chambers of commerce and garden clubs for the planting of memorial trees for the dead of World War II.

Mrs. John Sarver followed with an emphatic endorsement of immediate organization, suggesting it is none too soon to do something to promote a successful convention of the Texas Association of Nurserymen at Dallas next August.

B. E. Williams moved immediate organization and nominated Mr. Leverett for president. Disregarding Mr. Leverett's protests, Mr. Williams called for a second to his motion and a vote, which was accorded both promptly and unanimously. Mrs. Sarver was elected secretary-treasurer. Dues were set at $5 annually.

The next meeting will be held October 10, at the same place.

SOUTHWESTERN NOTES.

Will Griesa, Mount Hope Nurseries, Lawrence Kan., called on the trade at Denver in the middle of August.

The Cedar Point Nurseries, Springfield, Ill., have been purchased by John A. Ambuehl from D. W. Sewell, who is now farming.

Ross Wolfe, Wolfe's Nurseries, Stephenville, Tex., was in California the latter part of August, looking after the curing of the Lovell peach seeds which he handles in large quantities.

Roy Mendenhall, who operates the South Canon Nursery, Canon City, Colo., writes: "We are discontinuing our nursery business on a large scale until after the war."

C. D. "Bill" Wagoner, Wagoner's Nurseries, Hutchinson, Kan., returned recently from a successful fishing trip in Colorado. His family spent most of the summer in Colorado. As a result of enlarging the municipal airport of Hutchinson, the city has closed the main road to Wagoner's Nurseries. Mr. Wagoner is suing the city for damages.

KANSANS VISIT OTTAWA.

The members of the Kansas City Association of Nurserymen were guests of the Willis Nursery Co., Ottawa, Kan., August 8. Sixteen members arrived during the afternoon and were driven through the nurseries. In the evening a steak dinner was served at the North American hotel. Afterward a brief business meeting was held. John Sarber, Topeka, and Will Griesa, Lawrence, Kan., also were guests.

In the accompanying illustration the host and guests appear, as follows: Standing, left to right: A. E. Willis, A. B. Calkins, Virgil Jones, Lawrence Wilson, George Duey, E. Asjes, Sr., E. Asjes, Jr., Charles Williams, C. A. Chandler, Marvin Shepherd, H. C. Danbury, George Chandler. Kneeling, left to right: John Sarber, J. E. Snoddy, Will Griesa, Harold Hurley, S. R. McLane, Frank Pflumm, C. A. Munz, Howard Keeton.

Members of the Kansas City Association of Nurserymen at the Willis Nurseries, Ottawa, August 8.

WHOLESALE PRICE LIST FALL 1944

Established 1887
by J. H. H. Boyd

Our 57th Year

FOREST NURSERY CO.
McMINNVILLE, TENNESSEE

J. R. Boyd, President

Telephone 234W

In presenting you with our regular Fall Wholesale Trade List for this season we wish to thank our customers and friends for the liberal patronage given us in the past, and we hope to have the pleasure of serving you more in the future.

TERMS AND CONDITIONS: Five (5) per cent discount and free boxing and packing for cash with order. Free packing does not apply to balled and burlapped items. Open Accounts (on known or approved credit rating), two (2) per cent ten days; one (1) per cent twenty days; net, thirty days from date of shipment. Interest at six (6) per cent charged on all past-due accounts.

Orders for less than ten of a variety or grade will be invoiced at an ADVANCE OF 25% OVER THE TEN RATE REGARDLESS OF THE SIZE OF THE ORDER, except in Conifers and Broadleaf Evergreens where the "per each" and "per 10" rates apply.

Prices in this list are subject to market changes without notice and cancel all previous printed prices.

We charge for boxing and baling at cost of material used. When stock is loaded bulk in car or truck, no packing charge is made. Orders accepted subject to prior sale of stock or crop injury or loss from any cause beyond our control. We are careful to keep our varieties true to name as labeled, and we will replace on proper proof, any stock that may prove otherwise, free of charge, or refund the amount paid us, but it is mutually agreed that we shall not be liable for any amount greater than the purchase price paid us. NO CLAIMS WILL BE CONSIDERED UNLESS MADE IN WRITING WITHIN TEN DAYS AFTER RECEIPT OF GOODS.

SHIPPING—We request our customers to give definite shipping instructions regarding manner in which they wish goods shipped. In the absence of special instructions, we use our best judgment, but without assuming responsibility. All shipments travel at risk and expense of purchaser. All shipments will be accompanied by State Certificate of Inspection.

REFERENCE—Any bank or business house in McMinnville, the commercial agencies or any of the leading nurserymen in the United States.

We will be glad to send samples for approval on any items on orders booked. Due to labor shortage and the extra cost of material and time we will not send samples until we have an order for the stock, subject to approval of sample, which will be sent free on Shrubs and Trees except for transportation charges. B & B Evergreens will be charged for at the regular prices on the order.

(SEND WANT LIST FOR SPECIAL QUOTATIONS ON QUANTITY LOTS)

HARDY DECIDUOUS FLOWERING SHRUBS

S.—Seedlings; C.—Rooted Cuttings; Tr.—Transplanted; Br.—Branched; L.O.—Lining Out; Div.—Divisions.

ACANTHOPANAX PENTAPHYLLUM.

Five Leaf Aralia.	Per 10	100	1000
6 to 12 inch, L.O.	$0.40	$ 3.50	.....
12 to 18 inch, L.O.	.50	4.50	.....
18 to 24 inch, tr., well br.	1.50	12.00	.....
2 to 3 feet, tr., well br.	2.00	15.00	.....
3 to 4 feet, tr., well br.	3.00	25.00	.....

ALMOND, PRUNUS GLANDULOSA.
Double Pink-flowering Almond, own root.

6 to 12 inch, L.O.	$0.80	$ 7.00	.....
12 to 18 inch, L.O.	1.00	8.00	.....
12 to 18 inch, tr., well br.	2.00	15.00	.....
18 to 24 inch, tr., well br.	2.50	20.00	$180.00
2 to 3 feet, tr., well br.	3.00	25.00	225.00
3 to 4 feet, tr., well br.	4.00	30.00	.....

ALTHAEA. HIBISCUS SYRIACUS.
Shrub Althaea. Varieties:
Amplissimus, Double red.
Ardens, Double violet.
Boule de Feu, Double red.

6 to 12 inch, c.	$0.40	$ 3.00	$25.00
12 to 18 inch, c.	.50	3.50	30.00
18 to 24 inch, c.	.60	4.00	35.00
12 to 18 inch, tr.	.75	6.00	50.00
18 to 24 inch, tr.	1.25	10.00	80.00
2 to 3 feet, tr.	1.50	12.00	100.00
3 to 4 feet, tr.	2.00	15.00	.....

Varieties:
Jeanne d' Arc—Double White.
Lady Stanley—Semidouble White Shade Rose.
Pulcherrimus—Double Pink.

6 to 12 inch, c.	$0.40	$ 3.00	$25.00
12 to 18 inch, c.	.50	3.50	30.00
18 to 24 inch, c.	.60	4.00	35.00

Variety:
Rosea. Seedlings. Single Flowers.

4 to 6 inch, s.		$ 0.50	$ 4.00
6 to 12 inch, s.		.80	7.00
12 to 18 inch, s.		1.25	10.00
18 to 24 inch, s.		1.50	12.00

ARONIA ARBUTIFOLIA. Red Chokeberry.
ARONIA MELANOCARPA. Black Chokeberry.

12 to 18 inch, L.O., div.	$0.20	$ 1.25	$10.00
18 to 24 inch, L.O., div.	.25	1.50	12.00
2 to 3 feet, L.O., div.	.30	2.00	15.00

BENZOIN AESTIVALE. Spicebush.

6 to 12 inch, s.	$0.30	$ 2.50	$20.00
12 to 18 inch, s.	.35	3.00	25.00
18 to 24 inch, s.	.40	3.50	30.00

BERBERIS THUNBERGI. Japanese Barberry.

3 to 6 inch, s.		$ 1.25	$10.00
6 to 9 inch, s.	$0.30	2.00	15.00
9 to 12 inch, s.	.35	2.50	20.00
12 to 15 inch, s., light	.40	3.50	30.00
15 to 18 inch, s., 3-yr., br.	1.00	8.00	.....
18 to 24 inch, s., 3-yr., br.	1.25	10.00	.....

BERBERIS THUNBERGI ATROPURPUREA.
Red-leaf Barberry.

3 to 6 inch, s.	$0.40	$ 3.50	$30.00
6 to 9 inch, s.	.60	5.00	40.00
18 to 24 inch, tr.	2.50	20.00	.....
24 to 30 inch, tr.	3.00	25.00	.....
30 to 36 inch, tr.	4.00	35.00	.....

BERBERIS THUNBERGI ERECTA.
Truehedge Columberry.

Plant Patent No. 110.	5 Each	25 Each
18 to 24 inch	$0.33	$ 0.28
24 to 30 inch	.40	.35

BUDDLEIA DAVIDI MAGNIFICA.

Butterfly Bush.	Per 10	100	1000
12 to 18 inch, 2-yr.	$1.25	$10.00	.....
18 to 24 inch, 2-yr.	2.00	15.00	.....
2 to 3 feet, 2-yr.	2.50	20.00	.....

CALLICARPA AMERICANA.
American Beautyberry.

6 to 12 inch, s.	$0.35	$ 2.50	$20.00
12 to 18 inch, s.	.40	3.00	25.00
18 to 24 inch, s.	.45	3.50	30.00

CALYCANTHUS FLORIDUS. Sweet Shrub.

	Per 10	100	1000
4 to 6 inch, s.	$0.20	$ 1.50	$12.00
6 to 12 inch, s.	.30	2.50	20.00
12 to 18 inch, s.	.45	3.50	30.00
18 to 24 inch, s.	.55	4.50	40.00
2 to 3 feet, s.	.80	7.00	.....
12 to 18 inch, s., br.	.80	7.00	.....
18 to 24 inch, s., br.	1.25	10.00	.....
2 to 3 feet, s., br.	1.50	12.50	.....

CEANOTHUS AMERICANUS. Jersey Tea.

6 to 12 inch, s.	$0.50	$ 4.00	.....
12 to 18 inch, s.	.60	5.00	.....
18 to 24 inch, s.	.70	6.00	.....
12 to 18 inch, tr.	1.25	10.00	.....
18 to 24 inch, tr.	1.50	12.00	.....
2 to 3 feet, tr.	2.00	15.00	.....

CEPHALANTHUS OCCIDENTALIS. Buttonbush.

6 to 12 inch, c.	$0.30	$ 2.50	.....
12 to 18 inch, c.	.40	3.00	.....
18 to 24 inch, c.	.50	4.00	.....
2 to 3 feet, c.	.60	5.00	.....

CHIONANTHUS VIRGINICUS.
White Fringe Tree.

3 to 6 inch, s.	$0.50	$ 4.00	.....
6 to 9 inch, s.	.70	6.00	.....
9 to 12 inch, s.	1.00	8.00	.....

CORNUS AMOMUM. Silky Dogwood.

6 to 12 inch, c.	$0.30	$ 2.00	$15.00
12 to 18 inch, c.	.40	2.50	20.00
18 to 24 inch, c.	.50	3.00	25.00
12 to 18 inch, well br.	.60	5.00	.....
18 to 24 inch, well br.	1.00	7.00	.....
2 to 3 feet, well br.	1.50	10.00	.....

CORNUS STOLONIFERA.
Red Osier Dogwood.

6 to 12 inch, s.	$0.20	$ 1.25	$10.00
12 to 18 inch, s.	.30	2.00	15.00
18 to 24 inch, s.	.40	3.00	20.00
2 to 3 feet, s.	.50	4.00	25.00
12 to 18 inch, tr.	.60	5.00	.....
18 to 24 inch, tr.	1.00	7.00	.....
2 to 3 feet, tr.	1.50	10.00	.....

CORYLUS AMERICANA. Hazelnut.

6 to 12 inch, s.	$0.60	$ 5.00	.....
12 to 18 inch, s.	.70	6.00	.....
18 to 24 inch, s.	.80	7.00	.....
2 to 3 feet, s.	1.00	8.00	.....
12 to 18 inch, tr.	1.50	10.00	.....
18 to 24 inch, tr.	2.00	15.00	.....
2 to 3 feet, tr.	2.50	20.00	.....

CYDONIA JAPONICA. Japanese Quince.

4 to 6 inch, s.	$0.20	$ 1.25	$10.00
6 to 12 inch, s.	.25	2.00	15.00
12 to 18 inch, s.	.30	2.50	20.00

CYDONIA JAPONICA RUBRA.
Japanese Quince.
True Upright Red. Nonfruiting.

4 to 6 inch, c.	$0.80	$ 6.00	.....
6 to 12 inch, c.	1.00	7.00	.....
12 to 18 inch, c.	1.50	10.00	.....
12 to 18 inch, tr.	2.00	15.00	.....
18 to 24 inch, tr.	3.00	25.00	.....
2 to 3 feet, tr.	4.00	30.00	.....

CYTISUS SCOPARIUS. Scotch Broom.

6 to 12 inch, s.	$0.60	$ 5.00	.....
12 to 18 inch, s.	.75	6.50	.....
18 to 24 inch, s.	1.25	10.00	.....
2 to 3 feet, s.	1.50	12.50	.....

DEUTZIA SCABRA. Varieties:
Crenata—Double Pink.
Pride of Rochester—Double Rose.

6 to 12 inch, c.	$0.35	$ 2.50	.....
12 to 18 inch, c.	.40	3.00	$20.00
18 to 24 inch, c.	.50	4.00	25.00
12 to 18 inch, well br.	.70	6.00	40.00
18 to 24 inch, well br.	1.00	8.00	60.00

ELAEAGNUS ANGUSTIFOLIA. Russian Olive.

Seedlings, L.O.	$0.30	$ 2.50	$20.00
6 to 12 inch, s.	.40	3.50	30.00
12 to 18 inch, s.	.50	4.50	40.00

EUONYMUS AMERICANUS.

Brook Euonymus.	Per 10	100	1000
12 to 18 inch, div.	$0.20	$ 1.25	$10.00
18 to 24 inch, div.	.25	1.50	11.00

FORSYTHIA FORTUNEI. Fortune Forsythia.
FORSYTHIA INTERMEDIA. Border Forsythia.

6 to 12 inch, c.	$0.30	$ 2.50	$20.00
12 to 18 inch, c.	.35	3.00	25.00
18 to 24 inch, c.	.40	3.50	30.00
2 to 3 feet, c.	.60	5.00	40.00
12 to 18 inch, well br.	.60	5.00	40.00
18 to 24 inch, well br.	1.25	10.00	80.00
2 to 3 feet, well br.	1.50	12.00	100.00
3 to 4 feet, well br.	2.00	17.50	150.00

FORSYTHIA VARIEGATA GOLDBLOTCH.
Variegated Leaf.

Lining Out	$2.50	$20.00	.....
6 to 12 inch	3.00	25.00	.....
12 to 18 inch	4.00	.....	.....

HAMAMELIS VIRGINIANA. Witch Hazel.

3 to 6 inch, s.	$0.25	$ 1.50	.....
6 to 9 inch, s.	.30	2.25	.....
9 to 12 inch, s.	.35	2.50	.....
12 to 18 inch, s.	.45	3.50	.....
18 to 24 inch, s.	.55	4.50	$40.00
2 to 3 feet, s.	.65	5.50	50.00
2 to 3 feet, tr.	2.00	15.00	.....
3 to 4 feet, tr.	3.00	25.00	.....
4 to 5 feet, tr.	4.50	40.00	.....
5 to 6 feet, tr.	6.00	50.00	.....

HYDRANGEA ARBORESCENS.
Native Hydrangea.

6 to 12 inch, 1-yr.	$0.20	$ 1.25	$10.00
12 to 18 inch, 1-yr.	.30	2.00	15.00
18 to 24 inch, 1-yr.	.35	2.50	20.00

HYDRANGEA QUERCIFOLIA.
Oakleaf Hydrangea.

12 to 18 inch, L.O., div.	$0.50	$ 4.00	$30.00
18 to 24 inch, L.O., div.	.60	5.00	40.00
2 to 3 feet, L.O., div.	.70	6.00	50.00

HYPERICUM PROLIFICUM.

6 to 12 inch, s.	$0.20	$ 1.50	$12.00
12 to 18 inch, s.	.30	2.00	15.00
12 to 18 inch, s., well br.	.80	7.00	60.00
18 to 24 inch, s., well br.	1.00	9.00	75.00
2 to 3 feet, s., well br.	1.25	10.00	90.00

LAGERSTROEMIA INDICA.
Crape Myrtle. Mixed Colors.

2 to 3 feet, tr.	$2.00	$15.00	.....
3 to 4 feet, tr.	2.50	20.00	.....

LAGERSTROEMIA INDICA. Crape Myrtle.
Varieties:
Alba—White.
Rosea—Pink.
Rubra—Red.

2 to 3 feet, tr.	$3.00	$25.00	.....
3 to 4 feet, tr.	4.00	35.00	.....
4 to 5 feet, tr.	5.00	40.00	.....

LIGUSTRUM AMURENSE. Amur North Privet.

6 to 15 inch, L.O.	$0.30	$ 2.50	$20.00
6 to 9 inch, 2 br. up	.40	3.00	25.00
9 to 12 inch, 2 br. up	.45	4.00	35.00
12 to 18 inch, 2 br.	.60	5.00	45.00
12 to 18 inch, 3 br. up	.70	6.00	55.00

LIGUSTRUM IBOLIUM. Ibolium Privet.

6 to 15 inch, L.O., 1 & 2 br.	$0.30	$ 2.50	$20.00
6 to 9 inch, 2 br. up	.40	3.00	25.00
9 to 12 inch, 2 br. up	.45	4.00	35.00
12 to 18 inch, 2 br. up	.60	5.00	45.00

LIGUSTRUM OBTUSIFOLIUM. Ibota Privet.

6 to 12 inch, s.	$0.20	$ 1.25	$10.00
12 to 18 inch, s.	.25	2.00	15.00
18 to 24 inch, s.	.35	2.50	20.00
6 to 12 inch, 2 br. up, c.	.35	2.50	20.00
12 to 18 inch, 2 br., c.	.45	3.50	30.00
12 to 18 inch, 3 br. up	.55	4.50	40.00
18 to 24 inch, 2 br.	.55	4.50	40.00
18 to 24 inch, 3 br. up	.65	5.50	50.00
2 to 3 feet, 4 br. up	.75	6.50	.....

LIGUSTRUM OVALIFOLIUM. California Privet.	Per 10	Per 100	Per 1000
6 to 15 inch, L.O.	$0.25	$ 1.75	$15.00
12 to 12 inch, 2 br. up	.35	2.50	20.00
12 to 18 inch, 2 br.	.45	4.00	30.00
Cutting Grade	.45	4.00	30.00
12 to 18 inch, 3 br. up	.55	5.00	40.00
18 to 24 inch, 2 br.	.55	5.00	40.00
18 to 24 inch, 3 br. up	.70	6.00	50.00
2 to 3 feet, 4 br. up	.80	7.00	60.00
LIGUSTRUM SINENSE. South Privet.			
4 to 6 inch, s.	$0.15	$ 0.70	$ 6.00
6 to 12 inch, s.	.20	1.00	8.00
12 to 18 inch, s.	.25	1.50	12.00
18 to 24 inch, s.	.30	2.00	15.00
2 to 3 feet, s.	.40	3.00	25.00
12 to 18 inch, 2-yr., br., c.	.40	3.50	30.00
18 to 24 inch, 2-yr., br., c.	.50	4.50	40.00
12 to 18 inch, tr., well br.	.50	4.00	.....
18 to 24 inch, tr., well br.	.60	5.00	.....
2 to 3 feet, tr., well br.	.80	7.00	.....
LONICERA BELLA ALBIDA. White Belle Honeysuckle.			
Lining Out	$0.30	$ 2.50	$20.00
6 to 12 inch, c.	.40	3.00	25.00
12 to 18 inch, c.	.45	3.50	30.00
18 to 24 inch, c.	.50	4.00	35.00
12 to 18 inch, hedging	.60	5.00	45.00
18 to 24 inch, hedging	.80	7.00	60.00
LONICERA FRAGRANTISSIMA. Winter Honeysuckle.			
12 to 18 inch, c.	$0.40	$ 3.00	$25.00
18 to 18 inch, c.	.45	3.50	30.00
18 to 24 inch, c.	.50	4.00	35.00
12 to 18 inch, 2-yr., 3 br. up	.70	6.00	45.00
18 to 24 inch, 2-yr., 3 br. up	.80	7.00	60.00
2 to 3 feet, 2-yr., 3 br. up	1.25	10.00	.....
LONICERA MORROWI. Morrow's Honeysuckle.			
LONICERA TATARICA. Tatarian Honeysuckle. Varieties of Tatarian: Alba—White. Rosea—Pink. Rubra—Red.			
Lining Out	$0.30	$ 2.50	$20.00
6 to 12 inch, c.	.40	3.00	25.00
12 to 18 inch, c.	.50	4.00	30.00
18 to 24 inch, c.	.60	5.00	40.00
12 to 18 inch, hedging	.60	5.00	40.00
18 to 24 inch, hedging	.70	6.00	50.00
18 to 24 inch, well br.	1.25	10.00	80.00
2 to 3 feet, well br.	1.50	12.00	100.00
PHILADELPHUS CORONARIUS. Sweet Mock Orange.			
6 to 12 inch, 1-yr., c.	$0.40	$ 3.00	$25.00
12 to 18 inch, 1-yr., c.	.50	4.00	35.00
18 to 24 inch, 1-yr., c.	.60	5.00	40.00
PHILADELPHUS GRANDIFLORUS.			
PHILADELPHUS NIVALIS. Snowbank Mock Orange.			
12 to 18 inch, 2-yr., well br.	$1.00	$ 8.00	.....
18 to 24 inch, 2-yr., well br.	1.50	12.00	.....
2 to 3 feet, 2-yr., well br.	2.00	15.00	.....
RHUS CANADENSIS (Aromatica). Fragrant Sumac.			
4 to 6 inch, s.	$0.25	$ 2.00	$15.00
6 to 12 inch, s.	.30	2.50	20.00
12 to 18 inch, s.	.35	3.00	25.00
18 to 24 inch, tr.	1.50	12.50	.....
2 to 3 feet, tr.	2.00	15.00	.....
3 to 4 feet, tr.	2.50	20.00	.....
4 to 5 feet, tr.	3.00	25.00	.....
RHUS COPALLINA. Shining Sumac.			
6 to 12 inch, s.	...	$ 0.70	$ 6.00
12 to 18 inch, s.	$0.20	1.25	10.00
18 to 24 inch, s.	.25	1.50	12.00
2 to 3 feet, s.	.30	2.00	15.00
3 to 4 feet, s.	.45	3.50	30.00
4 to 5 feet, s.	.60	5.00	40.00
RHUS COTINOIDES. American Smoke Tree.			
6 to 12 inch, L.O., div.	$0.40	$ 3.00	$25.00
12 to 18 inch, L.O., div.	.45	3.50	30.00
18 to 24 inch, L.O., div.	.50	4.50	40.00
RHUS GLABRA. Smooth Sumac.			
6 to 12 inch, s.	...	$ 1.00	$ 8.00
12 to 18 inch, s.	$0.15	1.25	10.00
18 to 24 inch, s.	.20	1.50	12.00
2 to 3 feet, s.	.30	2.00	15.00
3 to 4 feet, s.	.45	3.50	30.00
4 to 5 feet, s., whips	.60	5.00	40.00
RHUS TYPHINA. Staghorn Sumac.			
6 to 12 inch, s.	...	$ 1.00	$ 8.00
12 to 18 inch, s.	$0.15	1.25	10.00
18 to 24 inch, s.	.20	1.50	12.00
ROBINIA HISPIDA. Rose Acacia.			
12 to 18 inch, L.O.	$0.35	$ 2.50	$20.00
18 to 24 inch, L.O.	.40	3.00	25.00
2 to 3 feet, L.O.	.50	4.00	30.00
SPIRAEA ARGUTA. Garland Spiraea.			
6 to 12 inch, c.	$0.50	$ 4.00	$30.00
12 to 18 inch, c.	.60	5.00	40.00
18 to 24 inch, c.	.70	6.00	50.00
12 to 18 inch, hedging	.70	6.00	50.00
18 to 24 inch, hedging	.90	7.00	60.00
12 to 18 inch, 2-yr., tr.	1.00	8.00	.....
18 to 24 inch, 2-yr., tr.	1.25	10.00	.....
2 to 3 feet, 2-yr., tr.	1.50	12.00	.....
3 to 4 feet, 2-yr., tr.	2.00	15.00	.....
SPIRAEA BILLIARDI ALBA. White Spike Bloom.			
Lining Out, 1-yr., c.	$0.35	$ 2.50	$20.00
6 to 12 inch, 1-yr., c.	.40	3.00	25.00
12 to 18 inch, 1-yr., c.	.50	4.00	30.00
18 to 24 inch, 1-yr., c.	.60	4.50	40.00
12 to 18 inch, 2-yr., well br.	.70	6.00	50.00
18 to 24 inch, 2-yr., well br.	1.00	8.00	70.00
2 to 3 feet, 2-yr., well br.	1.25	10.00	80.00
SPIRAEA BILLIARDI ROSEA. Billiard Spiraea.			
12 to 12 inch, c.	$0.35	$ 3.00	.....
12 to 18 inch, c.	.40	3.50	.....

SPIRAEA CALLOSA ROSEA. Pink Fortune Spiraea.	Per 10	Per 100	Per 1000
6 to 12 inch, s.	$0.20	$ 1.25	$10.00
12 to 18 inch, s.	.25	2.00	15.00
18 to 24 inch, s.	.30	2.50	20.00
SPIRAEA OPULIFOLIA (Physocarpus). Ninebark.			
6 to 12 inch, c.	$0.50	$ 3.50	.....
12 to 18 inch, c.	.60	4.50	.....
12 to 18 inch, 2-yr., well br.	.80	7.00	.....
18 to 24 inch, 2-yr., well br.	1.00	8.00	.....
2 to 3 feet, 2-yr., well br.	1.50	12.00	.....
SPIRAEA PRUNIFOLIA. Bridal Wreath.			
12 to 18 inch, tr.	$2.00	$15.00	.....
18 to 24 inch, tr.	2.50	20.00	.....
2 to 3 feet, tr.	3.00	25.00	.....
3 to 4 feet, tr.	3.50	30.00	.....
SPIRAEA THUNBERGI. Thunberg Spiraea.			
6 to 12 inch, c.	$0.50	$ 4.00	$30.00
12 to 18 inch, c.	.60	5.00	40.00
12 to 18 inch, hedging	.70	6.00	50.00
18 to 24 inch, hedging	.90	7.00	60.00
12 to 18 inch, 2-yr., tr.	1.00	8.00	.....
18 to 24 inch, 2-yr., tr.	1.25	10.00	.....
2 to 3 feet, 2-yr., tr.	1.50	12.00	.....
SPIRAEA VANHOUTTEI. L.O., field-grown	$0.35	$ 2.50	$20.00
6 to 12 inch, c.	.40	3.00	25.00
12 to 18 inch, c.	.50	4.00	35.00
9 to 12 inch, hedging	.50	4.00	35.00
12 to 18 inch, hedging	.65	5.50	50.00
18 to 24 inch, hedging	.75	6.50	60.00
SYMPHORICARPOS CHENAULTI. Improved Coralberry.			
6 to 12 inch	$0.35	$ 3.00	.....
12 to 18 inch	.50	4.00	.....
18 to 24 inch	.60	5.00	.....
2 to 3 feet, tr.	1.50	12.00	.....
3 to 4 feet, tr.	2.00	15.00	.....

SYRINGA PERSICA. Persian Lilac. Purple.	Per 10	Per 100	Per 1000
Lining Out	$0.50	$ 4.00	.....
6 to 12 inch, c.	.65	5.50	.....
12 to 18 inch, c.	.75	6.50	.....
12 to 18 inch, tr.	1.50	12.00	.....
18 to 24 inch, tr.	3.00	20.00	.....
2 to 3 feet, tr.	4.00	30.00	.....
SYRINGA VULGARIS. Named Varieties. Varieties: Belle de Nancy—Double. Satiny rose bloom, white center. Claude Bernard—Semidouble mauve. Congo—Single red. Gloire de Lorraine—Heavenly blue. Double. Lamartine—Hyacinth-flowered lilac. Pale pink. Ludwig Spaeth—Single red. Marie LeGraye—Single white. Michael Buchner—Double mauve. Mme. Abel Chatenay—Double white. Mme. Casimir Perier—Double white. Mme. van Aerschot—Single pale mauve.			
18 to 24 inch, tr.	$3.50	.....	.....
2 to 3 feet, tr.	4.50	.....	.....
SYRINGA VULGARIS. Common Purple Lilac.			
12 to 18 inch, tr.	$2.00	$15.00	.....
18 to 24 inch, tr.	2.50	20.00	.....
2 to 3 feet, tr.	3.00	25.00	.....
WEIGELA AMABILIS. Light Pink.			
Lining Out	$0.35	$ 3.00	.....
6 to 12 inch, c.	.45	3.50	.....
12 to 18 inch, c.	.55	4.50	.....
WEIGELA ROSEA. Pink.			
Lining Out	$0.35	$ 3.00	.....
6 to 12 inch, c.	.45	3.50	.....
12 to 18 inch, c.	.55	4.50	.....
12 to 18 inch, well br.	1.00	8.00	.....
18 to 24 inch, well br.	1.25	10.00	.....
2 to 3 feet, well br.	2.00	15.00	.....

FOREST and SHADE TREES

ACER DASYCARPUM. Silver Maple.	Per 10	Per 100	Per 1000
6 to 12 inch, s.	...	$ 1.00	$ 8.00
12 to 18 inch, s.	$0.15	1.25	10.00
18 to 24 inch, s.	.20	1.50	12.50
2 to 3 feet, s.	.30	2.00	18.00
3 to 4 feet, s.	.40	3.50	30.00
4 to 5 feet, tr., br.	2.00	15.00	.....
5 to 6 feet, tr., br.	3.00	20.00	.....
6 to 8 feet, tr., br.	4.00	35.00	.....
1½ to 2-inch caliper	8.00	.....	.....
2 to 2½-inch caliper	10.00	.....	.....
ACER NEGUNDO. Box Elder.			
12 to 18 inch, s.	$0.25	$ 1.25	.....
18 to 24 inch, s.	.35	2.00	.....
2 to 3 feet, s.	.45	2.50	.....
ACER RUBRUM. Scarlet Maple.			
6 to 12 inch, s.	$0.30	$ 2.00	$15.00
12 to 18 inch, s.	.35	2.50	20.00
18 to 24 inch, s.	.45	3.00	25.00
5 to 6 feet, tr.	7.50	65.00	.....
6 to 8 feet, tr.	10.00	90.00	.....
8 to 10 feet, tr.	12.50	110.00	.....
10 to 12 feet, tr.	20.00	.....	.....
ACER SACCHARUM. Sugar or Hard Maple.			
4 to 6 inch, s.	...	$ 1.25	$10.00
6 to 12 inch, s.	$0.30	2.00	15.00
12 to 18 inch, s.	.35	2.50	20.00
AESCULUS OCTANDRA. Yellow Buckeye.			
6 to 12 inch, s.	$0.20	$ 1.50	$12.00
12 to 18 inch, s.	.30	2.00	15.00
18 to 24 inch, s.	.35	2.50	20.00
2 to 3 feet, s.	.50	3.50	30.00
AESCULUS PAVIA RUBRA. Dwarf Red Buckeye.			
6 to 12 inch, 3-yr., s.	$0.60	$ 5.00	.....
12 to 15 inch, 3-yr., s.	.80	6.00	.....
15 to 18 inch, 3-yr., s.	1.00	8.00	.....
18 to 24 inch, 3-yr., s.	1.50	12.00	.....
AILANTHUS GLANDULOSA. Tree of Heaven.			
12 to 18 inch, s.	$0.25	$ 1.50	$12.00
18 to 24 inch, s.	.30	2.00	15.00
2 to 3 feet, s.	.35	2.50	20.00
ALBIZZIA JULIBRISSIN. Mimosa Tree.			
6 to 12 inch, s.	$0.50	$ 4.00	.....
12 to 18 inch, s.	.75	5.00	.....
18 to 24 inch, s.	.85	6.00	.....
4 to 5 feet, tr.	5.00	45.00	.....
5 to 6 feet, tr.	7.00	60.00	.....
6 to 8 feet, tr.	10.00	90.00	.....
8 to 10 feet, tr.	12.50	100.00	.....
BETULA LENTA. Sweet Birch.			
12 to 18 inch, s.	$0.35	$ 2.50	$20.00
18 to 24 inch, s.	.40	3.00	25.00
2 to 3 feet, s.	.50	4.00	35.00
BETULA NIGRA. River Birch.			
6 to 12 inch, s.	$0.30	$ 2.00	$15.00
12 to 18 inch, s.	.35	2.50	20.00
18 to 24 inch, s.	.40	3.00	25.00
2 to 3 feet, s.	.50	4.00	35.00
CARPINUS CAROLINIANA. American Hornbeam.			
6 to 12 inch, s.	$0.30	$ 2.00	$15.00
12 to 18 inch, s.	.40	2.50	20.00
18 to 24 inch, s.	.50	4.00	30.00
CATALPA BUNGEI.			
4 to 5 feet	$6.00	$50.00	.....
5 to 6 feet	7.50	65.00	.....
CATALPA SPECIOSA. Western Catalpa.			
6 to 12 inch, s.	$0.20	$ 1.00	$ 8.00
12 to 18 inch, s.	.25	1.50	12.00
18 to 24 inch, s.	.30	2.00	15.00
4 to 5 feet, tr., br.	2.00	15.00	.....
5 to 6 feet, tr., br.	2.50	20.00	.....
6 to 8 feet, tr., br.	3.50	30.00	.....
CELTIS MISSISSIPPIENSIS. Hackberry.			
6 to 12 inch, s.	$0.20	$ 1.00	.....
12 to 18 inch, s.	.25	1.50	.....

CELTIS OCCIDENTALIS. Northern Hackberry.	Per 10	Per 100	Per 1000
6 to 12 inch, s.	$0.20	$ 1.25	$10.00
12 to 18 inch, s.	.30	2.00	15.00
CERCIS CANADENSIS, American Redbud.			
4 to 6 inch, s.	...	$ 1.50	$10.00
6 to 12 inch, s.	$0.25	2.00	15.00
12 to 18 inch, s.	.30	2.50	20.00
18 to 24 inch, s.	.40	3.00	25.00
2 to 3 feet, s.	.50	4.00	35.00
2 to 3 feet, tr.	2.50	20.00	.....
3 to 4 feet, tr.	3.00	25.00	.....
4 to 5 feet, tr.	4.00	35.00	.....
5 to 6 feet, tr.	6.00	50.00	.....
6 to 8 feet, tr.	8.50	75.00	.....
8 to 10 feet, tr.	10.00	90.00	.....
CLADRASTIS LUTEA. Yellowwood.			
4 to 6 inch, s.	$0.35	$ 2.50	$20.00
6 to 12 inch, s.	.45	3.50	30.00
12 to 18 inch, s.	.60	5.00	.....
CORNUS FLORIDA. White-flowering Dogwood.			
6 to 12 inch, s.	$0.30	$ 2.00	$15.00
12 to 18 inch, s.	.40	3.00	25.00
18 to 24 inch, s.	.45	3.50	30.00
2 to 3 feet, s.	.70	6.00	50.00
3 to 4 feet, s., well br.	1.25	10.00	.....
4 to 5 feet, s., well br.	2.00	15.00	.....
2 to 3 feet, tr., br.	2.50	20.00	.....
3 to 4 feet, tr., br.	5.00	40.00	.....
4 to 5 feet, tr., br.	6.50	60.00	.....
5 to 6 feet, tr., br.	10.00	80.00	.....
6 to 8 feet, tr., br.	12.50	100.00	.....
8 to 10 feet, tr., br.	15.00	125.00	.....
CORNUS FLORIDA RUBRA. Pink-flowering Dogwood.			
4 to 5 feet, bare root	$17.50	$150.00	.....
4 to 5 feet, B&B	20.00	175.00	.....
5 to 6 feet, bare root	20.00	175.00	.....
5 to 6 feet, B&B	25.00	225.00	.....
6 to 8 feet, bare root	25.00	.....	.....
6 to 8 feet, B&B	32.50	.....	.....
DIOSPYROS VIRGINIANA. American Persimmon.			
6 to 12 inch, s.	$0.30	$ 2.00	.....
12 to 18 inch, s.	.40	3.00	.....
FAGUS AMERICANA. American Beech.			
4 to 6 inch, s.	...	$ 1.00	$ 8.00
6 to 12 inch, s.	$0.20	1.25	10.00
12 to 18 inch, s.	.25	1.50	12.00
18 to 24 inch, s.	.30	2.00	15.00
2 to 3 feet, s.	.35	2.50	20.00
FRAXINUS AMERICANA. White Ash.			
FRAXINUS LANCEOLATA. Green Ash.			
6 to 12 inch, s.	...	$ 0.60	$ 5.00
12 to 18 inch, s.	$0.15	1.00	8.00
18 to 24 inch, s.	.20	1.25	10.00
2 to 3 feet, s.	.25	1.50	12.00
3 to 4 feet, s.	.30	2.00	15.00
4 to 5 feet, s.	1.50	10.00	.....
5 to 6 feet, s.	2.00	15.00	.....
4 to 5 feet, tr.	2.00	15.00	.....
5 to 6 feet, tr.	2.50	20.00	.....
6 to 8 feet, tr.	4.00	35.00	.....
GINKGO BILOBA, Maidenhair Tree.			
4 to 6 inch, s.	$0.55	$ 4.50	.....
6 to 9 inch, s.	.65	5.50	.....
9 to 12 inch, s.	.75	6.50	.....
12 to 18 inch, s.	1.25	10.00	.....
18 to 24 inch, s.	2.00	15.00	.....
2 to 3 feet, s.	3.00	25.00	.....
GLEDITSIA TRIACANTHOS. Honey Locust.			
4 to 6 inch, s.	...	$ 0.60	$ 5.00
6 to 12 inch, s.	...	1.00	8.00
12 to 18 inch, s.	$0.20	1.25	10.00
GLEDITSIA TRIACANTHOS INERMIS. Thornless Honey Locust.			
6 to 12 inch, s.	...	$ 1.50	$10.00
12 to 18 inch, s.	$0.30	2.00	15.00
18 to 24 inch, s.	.40	2.50	20.00

SHADE TREES—*Continued*

	Per 10	Per 100	Per 1000
GYMNOCLADUS DIOICUS. Kentucky Coffee Tree.			
12 to 18 inch, s.	$1.00	$ 8.00	.....
18 to 24 inch, s.	1.25	10.00	.....
18 to 24 inch, tr.	1.50	12.00	.....
2 to 3 feet, tr.	2.00	15.00	.....
3 to 4 feet, tr.	3.50	30.00	.....
HICORIA LACINIOSA. Shellbark Hickory.			
HICORIA OVATA. Shagbark Hickory.			
4 to 6 inch, s.	$0.40	$ 3.50	$30.00
6 to 12 inch, s.	.60	5.00	40.00
12 to 18 inch, s.	.70	6.00	.....
18 to 24 inch, s.	2.00	15.00	.....
2 to 3 feet, s.	4.00	30.00	.....
3 to 4 feet, s.	6.00	50.00	.....
4 to 5 feet, s.	9.00	80.00	.....
JUGLANS CINEREA. Butternut.			
6 to 12 inch, s.	$0.35	$ 2.50	$20.00
12 to 18 inch, s.	.50	3.50	30.00
18 to 24 inch, s.	.60	5.00	40.00
2 to 3 feet, s.	.80	7.00	60.00
JUGLANS NIGRA. Black Walnut.			
6 to 12 inch, s.	$0.35	$ 2.50	$20.00
12 to 18 inch, s.	.50	3.50	30.00
18 to 24 inch, s.	.60	5.00	40.00
2 to 3 feet, s.	.80	7.00	60.00
3 to 4 feet, s.	1.50	12.00	.....
JUGLANS SIEBOLDIANA. Japanese Walnut.			
6 to 12 inch, s.	$1.00	$ 8.00	.....
12 to 18 inch, s.	1.25	10.00	.....
18 to 24 inch, s.	2.00	15.00	.....
KOELREUTERIA PANICULATA. Golden-Rain Tree.			
6 to 12 inch, s.	$0.70	$ 6.00	.....
12 to 18 inch, s.	1.00	8.00	.....
3 to 4 feet, tr.	6.00	.....	.....
4 to 5 feet, tr.	7.50	.....	.....
5 to 6 feet, tr.	10.00	.....	.....
LIQUIDAMBAR STYRACIFLUA. Sweet Gum.			
6 to 8 feet, tr.	$ 8.00	.....	.....
8 to 10 feet, tr.	12.50	.....	.....
1½ to 2-inch caliper	20.00	.....	.....
2 to 2½-inch caliper	25.00	.....	.....
(Cost of B&B to be added)			
LIRIODENDRON TULIPIFERA. Tulip Tree.			
4 to 6 inch, s.		$ 1.00	$ 7.00
6 to 12 inch, s.	$0.20	1.25	10.00
12 to 18 inch, s.	.25	1.50	12.00
18 to 24 inch, s.	.30	2.00	15.00
2 to 3 feet, s.	.35	2.50	20.00
3 to 4 feet, s.	.50	4.00	35.00
3 to 4 feet, tr.	4.00	35.00	.....
4 to 5 feet, tr.	6.00	50.00	.....
5 to 6 feet, tr.	7.00	60.00	.....
6 to 8 feet, tr.	10.00	75.00	.....
8 to 10 feet, tr.	12.50	100.00	.....
1½ to 2-inch caliper	15.00	120.00	.....
2 to 2½-inch caliper	17.50	.....	.....
(Cost of B&B to be added)			
MAGNOLIA TRIPETALA. Umbrella Magnolia.			
2 to 3 feet, tr., br.	$2.50	$20.00	.....
3 to 4 feet, tr., br.	3.50	30.00	.....
4 to 5 feet, tr., br.	4.50	40.00	.....
5 to 6 feet, tr., br.	5.50	50.00	.....
6 to 8 feet, tr., br.	7.00	60.00	.....
OXYDENDRUM ARBOREUM. Sourwood.			
6 to 12 inch, s.	$0.20	$ 1.25	$10.00
12 to 18 inch, s.	.25	1.50	12.00
18 to 24 inch, s.	.30	2.00	15.00
PLATANUS OCCIDENTALIS. American Plane Tree.			
12 to 18 inch, s.	$0.40	$ 3.00	$20.00
18 to 24 inch, s.	.50	4.00	30.00
2 to 3 feet, s.	.60	5.00	40.00
5 to 6 feet, tr.	5.00	.....	.....
6 to 8 feet, tr.	6.00	.....	.....
8 to 10 feet, tr.	8.00	.....	.....
1¼ to 1½-inch caliper	10.00	.....	.....
1½ to 2 -inch caliper	15.00	.....	.....
2 to 3 -inch caliper	25.00	.....	.....
POPULUS NIGRA ITALICA. Lombardy Poplar.			
6 to 12 inch, c.	$0.20	$ 1.50	$12.00
12 to 18 inch, c.	.30	2.00	17.50
18 to 24 inch, c.	.40	3.00	25.00
2 to 3 feet, c.	.50	3.50	30.00
3 to 4 feet, c.	.60	4.50	40.00
4 to 5 feet, 2-yr., c., light br.	.70	6.00	50.00
4 to 5 feet, tr.	1.50	12.00	.....
5 to 6 feet, tr.	2.25	18.00	.....
6 to 8 feet, tr.	3.00	25.00	.....
8 to 10 feet, tr.	3.50	30.00	.....
PRUNUS AMERICANA. American Plum.			
3 to 4 feet, tr.	$0.80	$ 5.50	.....
4 to 5 feet, tr.	1.00	8.00	.....
5 to 6 feet, tr.	1.25	10.00	.....
PRUNUS NEWPORT. New Purpleleaf Plum.			
PRUNUS PISSARDI. Purpleleaf Plum.			
12 to 18 inch, June buds	$2.00	$15.00	.....
18 to 24 inch, June buds	2.50	20.00	.....
2 to 3 feet, June buds	3.50	30.00	.....
PRUNUS PERSICA RUBRA PLENA. Dbl. Red-flowering Peach.			
PRUNUS PERSICA ALBA PLENA. Dbl. White-flowering Peach.			
12 to 18 inch, June buds	$1.50	$12.50	.....
18 to 24 inch, June buds	2.00	15.00	.....
2 to 3 feet, June buds	2.50	20.00	.....
PRUNUS SEROTINA. Wild Cherry.			
18 to 24 inch, s.	$0.35	$ 2.50	.....
2 to 3 feet, s.	.40	3.00	.....
3 to 4 feet, s.	.50	4.00	.....
4 to 5 feet, s.	1.00	8.00	.....
PTELEA TRIFOLIATA. Hop Tree.			
4 to 6 inch, s.	$0.40	$ 3.00	.....
6 to 12 inch, s.	.50	4.00	.....
12 to 18 inch, s.	.60	5.00	.....
18 to 24 inch, tr.	1.00	8.00	.....
2 to 3 feet, tr.	1.25	10.00	.....
3 to 4 feet, tr.	2.00	15.00	.....
4 to 5 feet, tr.	3.00	25.00	.....
RHAMNUS CAROLINIANA. Southern Buckthorn			
12 to 18 inch, s.	$0.20	$ 1.25	$10.00
18 to 24 inch, s.	.25	1.50	12.00
2 to 3 feet, s.	.30	2.00	15.00
ROBINIA PSEUDOACACIA. Black Locust.			
6 to 12 inch, s.		$ 0.75	$ 6.00
12 to 18 inch, s.	$0.15	1.00	8.00
18 to 24 inch, s.	.20	1.25	10.00
2 to 3 feet, s.	.25	1.50	12.00
3 to 4 feet, s.	.35	2.50	20.00
4 to 5 feet, s., br.	.50	4.00	.....
5 to 6 feet, s., br.	1.00	8.00	.....
6 to 8 feet, s., br.	1.50	12.00	.....
SALIX VITELLINA. Golden Willow.			
6 to 12 inch, c.	$0.20	$ 1.25	$10.00
12 to 18 inch, c.	.30	2.00	15.00
18 to 24 inch, c.	.35	2.50	20.00
SASSAFRAS VARIFOLIUM. Common Sassafras.			
6 to 12 inch, s.	$0.20	$ 1.25	$10.00
12 to 18 inch, s.	.30	2.00	15.00
18 to 24 inch, s.	.35	2.50	20.00
2 to 3 feet, s.	.40	3.00	25.00
SORBUS AUCUPARIA. European Mountain Ash.			
4 to 5 feet	$ 6.00	.....	.....
5 to 6 feet	8.00	.....	.....
6 to 8 feet	10.00	.....	.....
SOPHORA JAPONICA. Chinese Scholar's Tree.			
12 to 18 inch, s.	$1.00	$ 8.00	.....
18 to 24 inch, s.	1.25	10.00	.....
2 to 3 feet, s.	2.00	15.00	.....
3 to 4 feet, s.	3.00	25.00	.....
TILIA AMERICANA. American Linden.			
2 to 4 feet, tr.	$ 4.00	.....	.....
4 to 5 feet, tr.	5.00	.....	.....
5 to 6 feet, tr.	7.00	.....	.....
6 to 8 feet, tr.	10.00	.....	.....
TAXODIUM DISTICHUM.			
5 to 6 feet, tr.	$ 8.00	.....	.....
6 to 8 feet, tr.	10.00	.....	.....
ULMUS AMERICANA. American Elm.			
5 to 6 feet, tr.	$3.50	$30.00	.....
6 to 8 feet, tr.	6.00	50.00	.....
8 to 10 feet, tr.	6.50	60.00	.....
ULMUS PUMILA. Chinese Elm.			
6 to 12 inch, s.	$0.15	$ 1.00	$ 8.00
12 to 18 inch, s.	.20	1.25	10.00
3 to 4 feet, s.	.50	4.00	35.00
4 to 5 feet, s., br.	.70	6.00	50.00
5 to 6 feet, s., br.	.80	7.00	65.00
5 to 6 feet, tr.	5.00	35.00	.....
6 to 8 feet, tr.	6.00	50.00	.....
8 to 10 feet, tr.	7.00	60.00	.....
2 to 2½-inch caliper	15.00	.....	.....
2½ to 3-inch caliper	25.00	.....	.....
3 to 3½-inch caliper	30.00	.....	.....

VINES and CREEPERS

	Per 10	Per 100	Per 1000
BIGNONIA CAPREOLATA. Cross Vine. Evergreen. Climbing to height of 50 feet. Flowers in many clusters. Yellowish-red, lighter within tublars. Hardy as far north as Massachusetts. Very attractive.			
1-yr., No. 1, L.O., 8 to 12 inch	$0.40	$ 3.00	$25.00
1-yr., No. 2, L.O., 4 to 8 inch	.35	2.50	20.00
BIGNONIA RADICANS. Trumpet Creeper.			
6 to 12 inch, 1-yr., s.	$0.30	$ 2.00	$15.00
12 to 18 inch, 1-yr., s.	.40	3.00	25.00
18 to 24 inch, 2-yr., tr., No. 1	.90	7.00	60.00
12 to 18 inch, 2-yr., tr., No. 2	.80	5.50	45.00
CELASTRUS ORBICULATA.			
6 to 12 inch, s.	$0.35	$ 2.50	$20.00
12 to 18 inch, s.	.40	3.00	25.00
18 to 24 inch, s.	.50	4.00	30.00
CELASTRUS SCANDENS. American Bittersweet.			
6 to 12 inch, s.	$0.35	$ 2.50	$20.00
12 to 18 inch, s.	.40	3.00	25.00
18 to 24 inch, s.	.50	4.00	30.00
12 to 18 inch, tr., br.	.70	6.00	.....
18 to 24 inch, tr., br.	1.00	8.00	.....
2 to 3 feet, tr., br.	1.25	10.00	.....
LONICERA JAPONICA HALLIANA. Hall Japanese Honeysuckle.			
Small lining-out		$ 0.90	$ 7.00
Medium lining-out		1.25	10.00
2-yr., tr., No. 1	$0.90	7.00	65.00
2-yr., tr., No. 2	.70	6.00	55.00
2-yr., tr., No. 3	.60	5.00	40.00
1-yr., tr., No. 1	.70	6.00	50.00
LONICERA SEMPERVIRENS. Scarlet Trumpet Honeysuckle.			
Small lining-out	$0.35	$ 2.50	$20.00
Medium lining-out	.40	3.00	25.00
VINCA MINOR. Common Periwinkle.			
Medium lining-out, small	$0.15	$ 1.00	$ 7.00
Medium lining-out	.20	1.25	10.00
VITIS AESTIVALIS. Summer Grape.			
VITIS CORDIFOLIA. Winter Grape.			
6 to 12 inch, s.	$0.35	$ 2.50	$20.00
12 to 18 inch, s.	.40	3.00	25.00
18 to 24 inch, s.	.50	4.00	30.00
VITIS ROTUNDIFOLIA. Muscadine.			
6 to 12 inch, 2-yr., s., No. 3	$0.35	$ 2.50	$20.00
12 to 18 inch, 2-yr., s., No. 2	.40	3.00	25.00
18 to 24 inch, 2-yr., s., No. 1	.50	4.00	30.00
12 to 18 inch, 2-yr., br.	1.00	8.00	.....
18 to 24 inch, 2-yr., br.	1.50	12.00	.....
WISTARIA CHINENSIS BLUE. Seedling Type.			
WISTARIA CHINENSIS WHITE. Seedling Type.			
WISTARIA FRUTESCENS. American Wistaria. Seedling Type.			
2 to 3 feet, 2-yr.	$1.50	$12.00	.....
18 to 24 inch, 2-yr.	1.25	10.00	.....
12 to 18 inch, 2-yr.	1.00	8.00	.....
6 to 12 inch, s.	.50	4.00	.....
4 to 6 inch, s.	.40	3.50	.....

EVERGREENS—CONIFERS

All stock offered is first-class, young, thrifty material and will please any customer. No old overgrown stock offered. These prices include balling and burlapping.

	Per Each	Per 10
ARBORVITAE. Thuja.		
—OCCIDENTALIS GLOBOSA. Globe Arborvitae.		
12 to 15 inch	$0.90	$ 8.00
15 to 18 inch	1.00	9.00
18 to 24 inch	1.25	11.00
—OCCIDENTALIS. American Arborvitae. Dark Green.		
18 to 24 inch	$1.00	$ 8.00
2 to 3 feet	1.25	10.00
—OCCIDENTALIS HOVEYI. Hovey Compact Arborvitae.		
15 to 18 inch	$1.00	$ 8.00
18 to 24 inch	1.25	10.00
—OCCIDENTALIS PYRAMIDALIS. American Pyramid.		
18 to 24 inch	$1.25	$10.00
2 to 3 feet	1.50	12.00
3 to 4 feet	1.75	15.00
4 to 5 feet	2.25	20.00
—ORIENTALIS. Chinese Arborvitae. Seedling type. Well sheared, compact plants (Biota).		
24 to 30 inch	$1.00	$ 8.00
30 to 36 inch	1.25	10.00
3 to 4 feet	1.50	12.50
—ORIENTALIS AUREA NANA. Berckmans Golden (Biota).		
12 to 15 inch	$1.25	$10.00
15 to 18 inch	1.50	12.50
18 to 24 inch	1.75	15.00
24 to 30 inch	2.00	17.50
30 to 36 inch	2.50	20.00
—ORIENTALIS BAKERI. Baker Arborvitae ((Biota).		
18 to 24 inch	$1.00	$ 8.00
24 to 30 inch	1.25	10.00
30 to 36 inch	1.50	12.50
3 to 4 feet	2.00	17.50
4 to 5 feet	2.50	20.00
—ORIENTALIS BIOTA BONITA.		
12 to 15 inch	$1.00	$ 8.00
15 to 18 inch	1.25	10.00
18 to 24 inch	1.50	12.50
24 to 30 inch	1.75	15.00
—ORIENTALIS COMPACTA. Compact Arborvitae (Biota).		
15 to 18 inch	$1.00	$ 8.00
18 to 24 inch	1.25	10.00
24 to 30 inch	1.40	12.50
30 to 36 inch	1.75	15.00
—ORIENTALIS EXCELSA. Biota Excelsa.		
18 to 24 inch	$0.90	$ 7.50
24 to 30 inch	1.25	10.00
30 to 36 inch	1.50	12.50
3 to 4 feet	1.75	15.00
4 to 5 feet	2.00	17.50
CHAMAECYPARIS LAWSONIANA. Lawson Cypress.		
3 to 4 feet	$1.50	$12.50
4 to 5 feet	2.00	15.00
CHAMAECYPARIS LAWSONIANA ALLUMI. Blue Lawson Cypress.		
2 to 3 feet	$1.50	$12.00
3 to 4 feet	2.00	15.00
CITRUS PONCIRUS TRIFOLIATA. Hardy Orange.		
2 to 3 feet, 3-yr., tr.	$1.50	$12.00
3 to 4 feet, 3-yr., tr.	2.00	15.00
4 to 5 feet, 3-yr., tr.	3.00	25.00
JUNIPERUS CHINENSIS COLUMNARIS. Column Chinese Juniper.		
18 to 24 inch	$1.25	$10.00
24 to 30 inch	1.50	12.50
30 to 36 inch	1.75	15.00
3 to 4 feet	2.00	17.50
4 to 5 feet	2.50	22.50
5 to 6 feet	3.00	25.00
JUNIPERUS CHINENSIS PFITZERIANA AUREA. Hill Golden Pfitzeriana.		
15 to 18 inch	$1.25	$10.00
18 to 24 inch	1.50	12.50
24 to 30 inch	1.65	15.00
JUNIPERUS CHINENSIS PFITZERIANA. Pfitzer Juniper.		
12 to 15 inch	$1.25	$10.00
15 to 18 inch	1.50	12.50
18 to 24 inch	1.75	15.00
24 to 30 inch	2.00	17.50
30 to 36 inch	2.50	22.50
JUNIPERUS COMMUNIS ASHFORDI. Ashford Juniper.		
18 to 24 inch	$1.00	$ 9.00
24 to 30 inch	1.25	10.00
30 to 36 inch	1.50	12.50
3 to 4 feet	2.00	17.50
4 to 5 feet	2.25	20.00
JUNIPERUS COMMUNIS CANADENSIS. Vase-shaped. Silvery-green foliage.		
15 to 18 inch	$0.75	$ 6.00
18 to 24 inch	.90	7.50
24 to 30 inch	1.25	10.00
30 to 36 inch	1.50	12.50
JUNIPERUS COMMUNIS DEPRESSA PLUMOSA. Andorra Juniper.		
15 to 18 inch	$1.00	$ 8.00
18 to 24 inch	1.25	10.00
24 to 30 inch	1.50	12.50
30 to 36 inch	1.65	14.00

JUNIPERUS COMMUNIS HIBERNICA. Irish Juniper.

	Per Each	Per 10
18 to 24 inch	$1.00	$ 8.00
24 to 30 inch	1.25	10.00
30 to 36 inch	1.50	12.00
3 to 4 feet	1.75	15.00
4 to 5 feet	2.25	20.00

JUNIPERUS COMMUNIS HIBERNICA FASTIGIATA. Columnar Irish Juniper.

18 to 24 inch	$1.25	$10.00
24 to 30 inch	1.50	12.00
30 to 36 inch	1.75	15.00
3 to 4 feet	2.00	17.50

JUNIPERUS EXCELSA STRICTA. Spiny Greek Juniper.

12 to 15 inch	$1.00	$ 8.00
15 to 18 inch	1.25	10.00
18 to 24 inch	1.50	12.50
24 to 30 inch	2.00	15.00

JUNIPERUS SABINA. Savin Juniper.

15 to 18 inch	$1.00	$ 8.00
18 to 24 inch	1.25	10.00
24 to 30 inch	1.40	12.50

JUNIPERUS SABINA VONEHRON.

15 to 18 inch	$1.25	$10.00
18 to 24 inch	1.50	12.00
24 to 30 inch	1.75	15.00

JUNIPERUS SUECICA. Swedish Juniper.

18 to 24 inch	$1.00	$ 8.00
2 to 3 feet	1.25	10.00

JUNIPERUS VIRGINIANA. Red Cedar.

2 to 3 feet	$1.25	$10.00
3 to 4 feet	1.50	12.50

JUNIPERUS VIRGINIANA. Hill Dundee.

18 to 24 inch	$1.50	$12.50
2 to 3 feet	1.75	15.00
3 to 4 feet	2.50	20.00
4 to 5 feet	3.00	25.00

JUNIPERUS VIRGINIANA BURKI. Burk Juniper.

18 to 24 inch	$1.50	$12.50
24 to 30 inch	1.75	15.00
30 to 36 inch	2.50	20.00

JUNIPERUS VIRGINIANA CANAERTI. Canaert Red Cedar.

18 to 24 inch	$1.50	$12.50
24 to 30 inch	1.75	15.00
30 to 36 inch	2.50	20.00
2 to 3 feet	3.00	25.00
4 to 5 feet	3.50	30.00

JUNIPERUS VIRGINIANA GLAUCA. Blue Cedar.

18 to 24 inch	$1.50	$12.50
24 to 30 inch	1.75	15.00
30 to 36 inch	2.50	20.00

JUNIPERUS VIRGINIANA GLOBOSA. Globe Juniper.

12 to 15 inch	$1.00	$ 8.50
15 to 18 inch	1.25	10.00
18 to 24 inch	1.50	12.50
24 to 30 inch	1.75	15.00

JUNIPERUS VIRGINIANA KETELEERI. Keteleer Juniper.

24 to 30 inch	$1.75	$15.00
30 to 36 inch	2.00	17.50
3 to 4 feet	3.00	25.00
4 to 5 feet	3.50	30.00

JUNIPERUS VIRGINIANA SMITHI. Smith Red Cedar.

18 to 24 inch	$1.25	$10.00
24 to 30 inch	1.50	12.50
30 to 36 inch	1.75	15.00
3 to 4 feet	2.50	20.00

PICEA CANADENSIS. White Spruce.

18 to 24 inch	$1.25	$10.00
24 to 30 inch	1.75	15.00
30 to 36 inch	2.00	17.50
3 to 4 feet	2.50	....

PICEA EXCELSA. Norway Spruce.

18 to 24 inch	$1.25	$10.00
24 to 30 inch	1.75	15.00
30 to 36 inch	2.00	17.50

PINUS MUGO.

12 to 15 inch	$2.00	$17.50
15 to 18 inch	2.50	20.00

PINUS NIGRA. Austrian Pine.

PINUS SYLVESTRIS. Scotch Pine.

18 to 24 inch	$1.25	$10.00
2 to 3 feet	1.50	12.50

PINUS STROBUS. White Pine.

2 to 3 feet	$1.50	$12.50
3 to 4 feet	2.00	17.50
4 to 5 feet	2.25	20.00

RETINOSPORA FILIFERA. Thread Retinospora.

15 to 18 inch	$0.75	$ 6.00
18 to 24 inch	1.00	8.00
2 to 3 feet	1.25	10.00
3 to 4 feet	1.50	12.50

RETINOSPORA PISIFERA.

RETINOSPORA SQUARROSA VEITCHI. Blue Moss Color.

15 to 18 inch	$0.75	$ 6.00
18 to 24 inch	1.00	8.00
2 to 3 feet	1.25	10.00
3 to 4 feet	1.50	12.50

RETINOSPORA PLUMOSA. Green Retinospora.

RETINOSPORA PLUMOSA AUREA. Golden Plume Retinospora.

15 to 18 inch	$1.00	$ 8.00
18 to 24 inch	1.25	10.00
24 to 30 inch	1.50	12.50
30 to 36 inch	1.75	15.00
3 to 4 feet	2.00	17.50
4 to 5 feet	2.25	20.00

TSUGA CANADENSIS. Canadian Hemlock.

18 to 24 inch	$1.50	$12.50
24 to 30 inch	1.75	15.00
30 to 36 inch	2.00	17.50
3 to 4 feet	3.00	25.00
4 to 5 feet	4.00	35.00

(Sold only in connection with equal amount of other finished Evergreens.)

EVERGREENS—BROADLEAF

All items offered are nice, clean, thrifty stock in first-class condition. No old, overgrown stock offered. These prices include balling and burlapping except where noted.

	Per Each	Per 10	Per 100
ABELIA GRANDIFLORA. Glossy Abelia.			
12 to 18 inch, bare root	$0.25	$ 2.00	$15.00
18 to 24 inch, bare root	.30	2.25	20.00
18 to 24 inch, B&B	.40	3.25	30.00
2 to 3 feet, bare root	.40	3.25	30.00
2 to 3 feet, B&B	.55	5.00	45.00
3 to 4 feet, bare root	.55	5.00	45.00
3 to 4 feet, B&B	.75	7.00	65.00
BUXUS SEMPERVIRENS. Common Bush Form Boxwood. Compact, well filled.			
8 to 10 inch, bare root	$0.70	$ 6.00	$50.00
10 to 12 inch, bare root	.80	7.00	60.00
12 to 15 inch, bare root	1.25	10.00	....
12 to 15 inch, B&B	1.35	12.00	....
15 to 18 inch, B&B	1.75	16.00	....
18 to 24 inch, B&B	2.20	20.00	....
BUXUS SUFFRUTICOSA. Old English True Dwarf Boxwood. Compact, well filled.			
6 to 8 inch, bare root	$0.70	$ 6.00	....
8 to 10 inch, bare root	1.00	8.00	....
10 to 12 inch, bare root	1.25	10.00	....
12 to 15 inch, bare root	1.50	12.50	....
15 to 18 inch, bare root	2.00	17.50	....
(Cost of B&B to be added if wanted balled)			
CEDRUS DEODARA.			
18 to 24 inch	$1.25	$12.50	....
2 to 3 feet	2.00	15.00	....
3 to 4 feet	2.50	20.00	....
ELAEAGNUS PUNGENS REFLEXA.			
3 to 4 feet	$1.25	$10.00	....
4 to 5 feet	1.75	15.00	....
5 to 6 feet	2.00	17.50	....
EUONYMUS BUNGEANUS (SIEBOLDIANUS). Winterberry Euonymus.			
12 to 18 inch	$0.75	$ 6.00	....
18 to 24 inch	.85	7.00	....
2 to 3 feet	.95	8.00	....
EUONYMUS PATENS. Spreading Euonymus.			
12 to 18 inch	$0.75	$ 6.00	....
18 to 24 inch	.85	7.00	....
2 to 3 feet	1.00	8.00	....
EUONYMUS RADICANS. Wintercreeper.			
12 to 15 inch, bare root	$0.20	$ 1.50	$12.50
15 to 18 inch, bare root	.25	2.00	15.00
18 to 24 inch, bare root	.30	2.50	20.00
EUONYMUS RADICANS ACUTUS. Sharpleaf Wintercreeper.			
12 to 18 inch	$0.60	$ 5.00	....
18 to 24 inch	.70	6.00	....
2 to 3 feet	.90	7.50	....
EUONYMUS RADICANS CARRIEREI. Glossy Wintercreeper.			
12 to 15 inch, bare root	$0.15	$ 0.75	$ 6.00
15 to 18 inch, bare root	.20	1.00	8.00
18 to 24 inch, bare root	.30	2.00	15.00
2 to 3 feet, bare root	.50	4.00	30.00
EUONYMUS RADICANS COLORATUS. Spreading Wintercreeper.			
12 to 15 inch, bare root	$0.15	$ 0.75	$ 6.00
15 to 18 inch, bare root	.20	1.00	8.00
18 to 24 inch, bare root	.30	2.00	15.00
2 to 3 feet, bare root	.50	4.00	30.00
ILEX OPACA. American Holly (Standard or Bush Form).			
3 to 4 feet	$2.50	$20.00	....
4 to 5 feet	3.00	27.50	....
5 to 6 feet	4.00	37.50	....
6 to 8 feet	5.00	47.50	....
8 to 10 feet	7.00	65.00	....
ILEX VOMITORIA. Yaupon Holly.			
2 to 3 feet	$1.50	$12.50	....
3 to 4 feet	2.00	15.00	....
4 to 5 feet	2.50	20.00	....
LAUROCERASUS CAROLINIANA. Cherry Laurel. (Nice young stock. Well filled, compact plants.)			
3 to 4 feet	$1.15	$10.00	....
4 to 5 feet	1.50	12.50	....
5 to 6 feet	1.75	15.00	....
LIGUSTRUM JAPONICUM. Japanese Privet (Upright).			
3 to 4 feet	$0.60	$ 5.00	....
4 to 5 feet	.70	6.00	....
5 to 6 feet	.80	7.00	....
MAGNOLIA GLAUCA.			
18 to 24 inch	$1.25	$10.00	....
2 to 3 feet	1.75	15.00	....
MAGNOLIA GRANDIFLORA. Southern Magnolia.			
18 to 24 inch	$1.15	$10.00	....
2 to 3 feet	1.75	15.00	....
3 to 4 feet	2.25	20.00	....
4 to 5 feet	3.50	30.00	....
5 to 6 feet	4.50	40.00	....
MAHONIA AQUIFOLIUM. Oregon Hollygrape.			
15 to 18 inch	$0.90	$ 7.50	....
18 to 24 inch	1.25	10.00	....
24 to 30 inch	1.50	12.50	....
30 to 36 inch	1.75	15.00	....
NANDINA DOMESTICA.			
12 to 18 inch	$0.75	$ 6.00	....
18 to 24 inch	.90	7.50	....
2 to 3 feet	1.00	9.00	....
3 to 4 feet	1.25	11.00	....
PYRACANTHA COCCINEA LALANDI. Laland Firethorn.			
18 to 24 inch	$1.00	$ 8.00	....
2 to 3 feet	1.25	10.00	....
3 to 4 feet	2.00	15.00	....
4 to 5 feet	2.50	20.00	....
5 to 6 feet	3.00	25.00	....

(Send List for Special Quotations.)

UNDERSTOCKS

	Per 100	Per 1000
ACER DASYCARPUM. Silver Maple.		
Special, ¼-inch up	$2.00	$15.00
No. 1, 3/16-inch up	1.50	12.50
No. 2, 2/16 to 3/16-inch	1.25	10.00
ACER SACCHARUM. Sugar Maple.		
Special, ¼-inch up	$2.50	$20.00
No. 1, 3/16-inch up	2.00	15.00
No. 2, 2/16 to 3/16-inch	1.50	12.00
AESCULUS OCTANDRA. Yellow Buckeye.		
Special, ¼-inch up	$2.00	$15.00
No. 1, 3/16-inch up	1.50	12.00
ALTHAEA ROSEA. Seedlings.		
Special, ¼-inch up	$2.00	$15.00
No. 1, 3/16-inch up	1.50	12.00
No. 2, 2/16 to 3/16-inch	1.25	10.00
BETULA NIGRA. River Birch.		
Special, ¼-inch up	$2.50	$20.00
No. 1, 3/16-inch up	2.00	15.00
No. 2, 2/16 to 3/16-inch	1.50	12.00
CARPINUS CAROLINIANA. Hornbeam.		
Special, ¼-inch up	$3.00	$25.00
No. 1, 3/16-inch up	2.50	20.00
No. 2, 2/16 to 3/16-inch	2.00	15.00
CORNUS FLORIDA. White-flowering Dogwood.		
Special, ¼-inch up	$3.50	$30.00
No. 1, 3/16-inch up	2.50	20.00
No. 2, 2/16 to 3/16-inch	2.00	15.00
CORNUS STOLONIFERA. Red Osier Dogwood.		
Special, ¼-inch up	$2.00	$15.00
No. 1, 3/16-inch up	1.50	12.00
No. 2, 2/16 to 3/16-inch	.70	6.00
DIOSPYROS VIRGINIANA. American Persimmon.		
No. 1, 3/16-inch up	$2.50	$20.00
No. 2, 2/16 to 3/16-inch	2.00	15.00
No. 3, under 2/16 inch	1.25	10.00
FAGUS AMERICANA. American Beech.		
Special, ¼-inch up	$2.50	$20.00
No. 1, 3/16-inch up	2.00	15.00
No. 2, 2/16 to 3/16-inch	1.50	12.00
HAMAMELIS VIRGINIANA. Witch Hazel.		
Special, ¼-inch up	$3.50	$30.00
No. 1, 3/16-inch up	3.00	25.00
No. 2, 2/16 to 3/16-inch	2.50	20.00
ILEX OPACA. American Holly.		
Special, ½-inch up	$5.00	$40.00
No. 1, 3/16-inch up	4.00	30.00
No. 2, 2/16 to 3/16-inch	3.00	25.00
JUGLANS NIGRA. Black Walnut.		
Special, 7/16-inch up	$4.00	$30.00
No. 1, 5/16 to 7/16-inch	3.00	25.00
No. 2, ¼-inch up	2.50	20.00
No. 3, 3/16-inch up	2.00	15.00
JUNIPERUS VIRGINIANA. Red Cedar.		
Special, ¼-inch up	$6.00	$50.00
No. 1, 3/16-inch up	5.00	40.00
No. 2, 2/16 to 3/16-inch	4.00	30.00
LIGUSTRUM AMURENSE. North Privet.		
Special, ¼-inch up	$3.00	$25.00
No. 1, 3/16-inch up	2.50	20.00
No. 2, 2/16 to 3/16-inch	2.00	15.00
LIGUSTRUM OBTUSIFOLIUM. Ibota Privet.		
Special, ¼-inch up	$3.00	$25.00
No. 1, 3/16-inch up	2.50	20.00
No. 2, 2/16 to 3/16-inch	2.00	15.00
LIGUSTRUM OVALIFOLIUM. California Privet.		
LIGUSTRUM SINENSE. South Privet.		
Special, ¼-inch up	$3.00	$25.00
No. 1, 3/16-inch up	2.50	20.00
No. 2, 2/16 to 3/16-inch	2.00	15.00
WISTARIA CHINENSIS BLUE. Seedling Type.		
WISTARIA CHINENSIS WHITE. Seedling Type.		
WISTARIA FRUTESCENS. American Wistaria. Seedling Type.		

	Per 10	Per 100	Per 1000
Special, ¼-inch up	$0.75	$6.50	$55.00
No. 1, 3/16-inch up	.65	5.50	45.00
No. 2, 2/16 to 3/16-inch	.55	4.50	40.00

Due to the drought that prevailed here from April to September 1, our supply of nursery stock of most items is limited, compared to other years, and we are completely out of many items. The good rains we have had for the past few days are putting new life into our available stock, and we believe, even though the grades run smaller, the stock will come out in good condition. We will have some items in Lining-out Evergreens, Hardwood Cuttings, Collected Ferns and Collected Evergreens to offer later; also can quote a general line of collected stock. Send your want list for quotation on any of these items.

Day's Meetings at Denver

FORM COLORADO CHAPTER.

Nurserymen Meet in Afternoon.

R. P. White, A. A. N. executive secretary, arrived at Denver early Thursday morning, September 7, and was driven about the city and close-by hills by a small committee of nurserymen in the forenoon. At noon about a dozen nurserymen met at the Navarre café and ate lunch with him. At 1:30 other nurserymen from the city and state came in, and all discussed together the desirability of forming a Colorado chapter of the A. A. N.

Clayton Watkins, president of the Colorado Nurserymen's Association, presented a request for the formation of a Colorado chapter of the A. A. N., signed by Scott Wilmore, Clayton Watkins, John T. Roberts, George W. Kelly, Leonard Tolleson, Maurice Marshall, D. W. Spangler, Roy Woodman, Kroh Bros., Armin Barteldes, Ray Williams, A. R. Langman, Maurice Anderson and Mrs. G. R. Marriage, present members of the A. A. N., and by five who put in application for membership at this meeting: John Nagle, Charles Wilmore, George Amidon, Mrs. Blanche Oakes and Mr. Clark. All but five of these were present at this meeting.

An hour or more was spent in discussing the organization plan of the A. A. N. and how the organization was run. Secretary White spoke especially to the applicants on "What You Get in the A. A. N."

There was some business transacted by the Colorado Nurserymen's Association, including plans to hold another short course in February in connection with the Denver florists and the Colorado Forestry and Horticulture Association.

Secretary White then talked for about an hour on the general outlook for business in the coming years. He predicted that many men would be released in the next few months and he said we should be prepared to interest and train some to help out in our nursery work. He then went quite thoroughly into the possibilities for sale of nursery stock in the next six years. He gave as projects which would demand a great deal of planting the air parks which would surely be built, the slum clearance plans, the normal small residence construction, the increased highway and city approach park planting needed, national cemeteries and memorial parks. He told of the amount of lining-out stock planted in 1943 and 1944 and what should be planted in the next few years.

W. J. Smart, of the D. Hill Nursery Co., Dundee, Ill., who is traveling with Mr. White, spoke for a few minutes on the shortages and demands for nursery stock that he had observed.

Association Hears White.

At 6 p. m. about 125 plant lovers, including all the nurserymen who had attended the afternoon meeting, assembled at the museum in City park for a picnic supper of the Colorado Forestry and Horticulture Association. Several out-of-town nurserymen who could not attend the afternoon session came in for the evening. A great deal of preparation had been made for the picnic and meeting, and most of the horticulturally minded people of the region were in attendance. Between the time of finishing the supper and the time of the evening meeting, the group was conducted through the park to see unusual trees by M. Walter Pesman, landscape architect, and Robert E. More, evergreen enthusiast.

At 8 p. m. about 300 people assembled in the Phipps auditorium of the museum and listened to an inspiring talk on postwar horticulture by Mr. White. Robert E. More introduced Mr. White and explained to those present something of the objectives of the Colorado Forestry and Horticulture Association. Mr. White told those present what they could expect in horticulture following the war. He mentioned the normal small house plans for the next six years, the federal highway plans, the need for beautifying the coming air parks, the slum clearance projects and the trend toward living war memorials. He then went quite extensively into the advantages and benefits to be gained for a community by a botanical garden. He told some of the definite plans that the organization had been working on for a memorial arboretum. He suggested the name, "Rocky Mountain Memorial Arboretum," for this development. This was the first public notice of the plans for an arboretum, and it is hoped to follow this up with a definite move toward beginning construction. An appropriate site has been agreed upon by the committee, and there has been an encouraging show of interest by those who can help in the undertaking.

After the talks, Alfred Bailey, director of the museum, favored with a showing of some of his remarkable natural history movies.

George W. Kelly.

N. J. SCOTT, manager of Brookdale-Kingsway, Ltd., Bowmanville, Ont., visited nursery centers in the central states last month.

R. F. STOEHR has purchased the interest of his partner, F. B. Wilson, in the Dayton Fruit Tree Label Co., Dayton, O.

NOW READY FOR FALL SHIPMENT

	Per 10	Per 100
CLEMATIS (large-flowering)		
2¼-in. pots	**$2.00**	**$18.00**
3-in. pots	**3.00**	**28.00**
Jackmani, Madam Andre, Henryi, Ramona, Baron Veillard.		
SILVER LACE VINE (Polygonum auberti)		
2¼-in. pots	**1.40**	**12.00**
BOSTON IVY (Ampelopsis veitchi)		
2½-in. pots	**1.60**	**14.00**
MORDENS HARDY PINK LYTHRUM		
2¼-in. pots	**1.80**	**15.00**

JEWELL NURSERIES, INC.

Box 457, Lake City, Minn.

Sherwood Nursery Co.

EVERGREENS — Propagators and Growers

141 S. E. 65th Avenue • • Portland 16, Oregon

"If thou of fortune be bereft, and in thy store there be but left two loaves, sell one and with the dole buy hyacinths to feed thy soul."

The philosophy expressed in this old Chinese proverb concerning hyacinths applies equally well to many of the superb blossoming and ornamental broadleaf evergreens, such as the following:

Heathers

The heathers have always been a delight to gardeners, and supply a variety of plants to meet varying needs.

Calluna vulgaris aurea (Golden Heather)
Possesses fine golden foliage that heads up in many of the stems in mosslike clusters. During the fall and winter the foliage takes on beautiful tinges of red which are intermingled with green and gold. The multitude of flowers are in soft pleasing lavender shades. These blend with the green and gold of the foliage in producing one of nature's daintiest and most charming color effects. Appeals to all who see it. Hardy, new. Height about 18 inches.

Calluna vulgaris rubra (Red Heather)
The Red Heather has become one of the popular garden evergreens. When in bloom there is nothing visible but the blossoms, which are a rich, purplish-red. It is a brilliant display of flowering beauty in midsummer. Hardy, and grows about 18 inches tall. Its blooms are especially welcome coming at a season when there is but little competition in blossoming shrubs. A native of Scotland.

Daboecia polifolia rosea (Pink Irish Bell Heather)
A splendid dwarf evergreen growing 2 feet high. Foliage fine, dark green above, silvery beneath. The flowers are abundant, rosy-lavender, and resemble little bells nodding from the tips of slender, erect stems. It is one of the few dwarf shrubs which start blooming in spring and continue in bloom until cold weather. Very desirable for borders, rockeries and masses. Hardy and new.

Erica hybrida (Dawn)
One of the attractive new evergreens. Height about 18 inches, foliage soft, thick and much branched. The flowers are large, clustered pink bells. It stays in bloom all summer. Hardy, very rare. This variety is a real gem and merits the attention given it. It possesses unusual delicacy, both in foliage and blossoms.

Erica mediterranea maxima
An upright heather to 4 or 5 feet. Vigorous grower with fine, very dense dark green foliage and producing a wealth of lovely purple tinted flowers. In general characteristics it might be thought of as a tall erect form of Darley Heath. Fits well into average plantings. Hardy. Blooms from Christmas to late spring. A gorgeous plant when in bloom and always attractive in foliage.

Berry Bearers

Evergreens have several pronounced ornamental values in addition to the fact that they are evergreen. Among these are habit of growth, color and type of foliage, blossoms, fruit and cones. By no means the least of these is the bearing of berries, which are often carried well into cold weather, and in some climates some species carry their berries throughout the winter. This type gives added cheer at a time when flowers are few, besides their decorative value when cut.

Arctostaphylos uva-ursi (Kinnikinnick)
A lovely low trailing evergreen, flourishing in a wide range of latitude and altitude. In Oregon it is at home from the splash of the waves of the Pacific to timberline in the Cascade mountains. Withstands almost any degree of cold. Has large red berries, roundish glossy leaves and grows in thick masses, completely covering the ground, rocks, walls or old logs over which it trails. Good the year round and in every respect decidedly pleasing and satisfying. Considered by some to be the best ground cover known. The berries, which are borne singly and in clusters along the trailing branches, add much to its attractiveness.

Aucuba japonica nana (Dwarf Aucuba)
This is a dwarf form with lustrous green leaves and a profusion of bright scarlet berries borne in clusters making a combination of surpassing beauty. Appeals to everyone. Hardy at Ogden, Utah. Comparatively new and rare, but certain to find a place in many gardens. Like the other Aucubas, it is dioecious and the male plants must be planted with the females to produce fruit.

Cotoneaster microphylla minor (Dwarf Rockspray)
A delightful little dwarf. Dainty, deep green, glossy leaves, red berries. A ground cover of first rank. Hardy, free from disease.

Nandina domestica (Nandina)
A native of the Orient. Characterized by delicate foliage, the long slender leaves being frond-like. It bears large clusters of bright red berries which at times almost cover the tops of the plant, and in outstanding beauty. Some of the leaves turn in autumn to attractive shades of red, bronze and scarlet, and some remain green. Height 4 to 5 feet. Good for specimen or mass plantings. One of the finest hardy evergreens grown.

The Brooms

This is a group of plants not as generally known as some, but one that is greatly loved and appreciated by those who know them. There are few shrubs that furnish a greater variety of growth, types or impelling colors in a profusion of bloom than the brooms.

Cytisus purpureus (Purple Broom)
A dwarf procumbent shrub, growing to 2 feet and bearing attractive purple flowers in profusion. Well leaved making it attractive in both leaf and blossom. A plant that is new and decidedly different among brooms. Native of south Austria and northern Italy. One of the hardiest. Very effective in mass plantings. There is a slight variation in the color shading of the blossoms of different plants which enhances its beauty when grouped. Among its other values is a fine, strong root system.

Cytisus scoparius (Borsch's Prostrate Broom)
Grows about 3 feet tall with a spread of 6 to 8 feet, making it very desirable for bank plantings. Foliage is dense. Flowers are of tricolor effect in blending of bright garnet red, rose and ivory. The color effect at a distance is rose flecked with garnet. A most profuse bloomer and unexcelled in its class. Hardy. There is much that could be said in praise of this gorgeous bloomer.

Genista hispanica (Spanish Broom)
Sometimes called Spanish Gorse. Evergreen globe about 24 inches high. Shapely and attractive in the flower and in the foliage which conceals numerous thin sharp spines. Like the tiger's velvety paw, the fine foliage completely conceals the ferocious claws hidden underneath. Hardy and has unexcelled merit for special plantings.

Flowering and Foliage Types

Azalea mollis is deciduous. The others listed are evergreen. Besides their beautiful foliage, some of the choicest bloomers in the entire plant kingdom are found among the broadleaf evergreens.

Azalea mollis (Chinese Azalea)
Very hardy. Blooms before leafing. Foliage bright green and attractive, turning to gorgeous shades of bronze and red in the fall. Flowers are large and borne in great profusion. It has an irresistible appeal and is a great favorite to all who know it. Its plantings cannot be overdone. We are offering a choice lot of plants chiefly in the popular shades of salmon and orange.

Berberis verruculosa
Height 3 to 4 feet. One of the new introductions from Western China. The small glossy leaves form a mass of dark evergreen foliage, which turns to a gorgeous red in colder climates. Flowers golden-yellow. Flourishes in heat or cold, and is one of the hardiest and best of barberries.

Kalmia latifolia (Mountain Laurel)
Native of the Appalachian mountains. Grows into a compact, symmetrical shrub, densely covered with foliage. Leaves medium size, glossy and unchanging throughout the year. When in bloom the plants are literally bouquets of lovely, cup-shaped flowers, ranging from almost white to deep pink in color on individual specimens. Effective singly or in mass plantings. Height, 3 feet or more. Very hardy and very desirable.

Leucothoe catesbaei (Drooping Leucothoe)
One of the most ornamental of the broad-leaved evergreens. Semidwarf and hardy. A good under-cover plant or facer for taller shrubs. Makes fine sprays for florists' use. Large, glossy foliage, turning to gorgeous shades of red and bronze in the fall and winter. White flowers produced in clusters, in the early spring. Erect, but with tips of branches drooping.

Remember, Sherwood Nursery Co. pays shipping cost on lining-out stock to all points in the United States, Canada and Alaska.

Wholesale only.

This Business of Ours

Reflections on the Progress and Problems of Nurserymen

By Ernest Hemming

HAIL.

Most of us have seen hailstorms of the minor variety, but the real thing, when the stones are as big as golf balls, etc., is rather rare, for which we can be exceedingly thankful.

About three weeks ago this section of Maryland had a quite severe hailstorm. Fortunately for us, the damage at our nursery was slight, but at a little town called Trappe, about ten miles away, the effects were severe. Besides the damage to windows, buildings, etc., the injury to crops and trees was heavy. In the town a few days after the storm, the scene was most weird; all the foliage had been stripped from the trees in the town and the surrounding woods. The few pieces of leaves left on the trees were brown, making it look as though fire had swept through the countryside. One can imagine what would happen to a nursery in such a storm. There probably would not be a salable plant left. E. S. H.

THE GHOST PLANT.

Lycoris squamigera, or ghost plant, as it is often called, because it apparently appears so suddenly in full bloom, was caught in the act this year. Catching sight of plants in full bloom in a neighbor's garden, I went to see if my own had appeared. There was no sign of them, not even a crack in the ground. So I determined to keep tabs on them, with the following results:

Although in full bloom in the neighbor's garden August 1, in my own garden:

August 2, nothing aboveground.
August 3, just peeping through the ground.
August 4, two inches high.
August 5, eight inches high.
August 6, thirteen inches high.
August 7, eighteen inches high.
August 8, twenty-three inches high.
August 9, flowers opened.

While not instantaneous, it is not slow for a cluster of pink, lilylike flowers about two feet high to appear without a trace of green foliage in seven days.

In due time the flower stems will die down, and the bulbs next spring will throw up their strap-shaped foliage, which in turn will die down to be followed by the flowers as described above.

Lycoris squamigera is a robust plant and, from all accounts, hardy as far north as New England. It is such an unusual plant that it is a wonder the trade has not made much more noise about it. E. H.

POLLENIZATION.

There seems to be an unusually heavy crop of holly berries on the young plants in the nursery this year. So, very likely, the weather prophets will be telling us to expect a severe winter. Whether there is any connection between the two phenomena or not it is hard to say, but personally I am more inclined to believe that the state of the weather at the time pollenization was taking place has more to do with the crop than anything else. If the weather is wet and cold about the time the pollen is ready, it stands to reason the bees cannot do a good job of distributing it. As the holly pollen is produced on separate plants, bees or other insects must carry it to the berry-bearing plants. This is an interesting subject and deserves a little more attention by practical nurserymen. The subject of pollenizing has been pretty well studied in orchard and food crops, but even in those branches of horticulture and agriculture we don't know it all.

I recall the late Thomas Meehan's telling me that the reason the hazelnut was not so dependable a crop at Germantown, Pa., as it was in England was that a warm day or two in February or March would develop the catkins in advance of the stigmas, so that the nuts failed to develop, or words to that effect.

We introduce plants from one part of the world to another without much thought as to whether their sexual reproduction depends on a certain kind of insect, as in the fig, or on conditions of weather, as in the hazelnut. In giving thought to the subject it is well to keep in mind that a plant's sole object is to exist and reproduce itself; we are so likely to think of the rest of creation as just for our special benefit. The honey, color and the fragrance of a flower is to insure pollenization, not, as we fondly believe, just to please our senses. If we can divert the plant's object to our own particular ends, that is so much to the good. E. H.

ALEX TUSCHINSKY, proprietor of the Hillsdale Landscape Co., Indianapolis, Ind., last month spent a vacation in the upper Michigan peninsula to fish and avoid hay fever.

ERNEST W. TOWNSEND, Jr., is now operating as E. W. Townsend & Son, Salisbury, Md., with E. W. Townsend III as production manager. He and his brother, L. Sherman Townsend, last spring dissolved the partnership of E. A. Townsend & Sons established by their father.

EVERGREENS

For Fall Delivery

An excellent assortment of varieties and sizes.

We have manpower available for large-scale evergreen digging.

Write for special advance evergreen and peony list.

LAKE'S SHENANDOAH NURSERIES

Shenandoah, Iowa

EVERGREENS

Buy these well shaped plants with confidence!
All have been transplanted and will be carefully balled.

	Per 100
Taxus cuspidata	
15 to 18 ins.	$200.00
18 to 24 ins.	275.00
2 to 2½ ft.	375.00
Pfitzer Juniper	
15 to 18 ins.	120.00
18 to 24 ins.	175.00
Savin Juniper	
15 to 18 ins.	100.00
18 to 24 ins.	150.00
2½ to 3 ft.	225.00
Andorra Juniper	
18 to 24 ins.	150.00
Greek Juniper	
15 to 18 ins.	$100.00
18 to 24 ins.	150.00
Keteleer Juniper	
2½ to 3 ft.	200.00
3 to 4 ft.	300.00
Swedish Juniper	
2 to 2½ ft.	100.00
2½ to 3 ft.	125.00
3 to 4 ft.	175.00
Norway Spruce	
2 to 3 ft.	125.00
3 to 4 ft.	175.00
Pyramidal Arborvitae	
3 to 4 ft.	$225.00
4 to 5 ft.	325.00
American Arborvitae	
3 to 4 ft.	200.00
Woodward Globe A.V.	
12 to 15 ins.	75.00
15 to 18 ins.	100.00
18 to 24 ins.	150.00
Chinese Arborvitae	
3 to 4 ft.	200.00
4 to 5 ft.	250.00
Scotch Pine	
3 to 4 ft.	350.00

I. E. ILGENFRITZ' SONS COMPANY
THE MONROE NURSERY
Monroe, Michigan

COOPERATIVE RESEARCH.

[Concluded from page 10.]

greenhouse space, equipment and necessary chemicals. The department of zoology loaned a micro-respirometer; and the department of plant pathology provided for its maintenance and purchased the necessary respiration vessels. The iris research has been published as a cooperative investigation by the division of cereal crops and disease of the bureau of plant industry of the United States Department of Agriculture and the departments of botany and floriculture and ornamental horticulture of the New York state college of agriculture. The 1943 Vaughan award of the American Society for Horticultural Science has made possible the purchase of greatly needed reference books in the plant sciences and allied fields and also has provided the stimulus for further work.

STATE nurseries have found less demand for seedling trees for planting during the present labor shortage. Three million seedlings were distributed this year from the two forest tree nurseries operated by the Illinois division of forestry, in contrast to ten million trees in the peak year of 1940. Strip mine operators, as a group, again were the largest purchasers.

JUNIPERUS VIRGINIANA, 10 to 12 ins., S, $60.00 per 1000, $550.00 per 5000.

PFITZER JUNIPER	Per 1000
8 to 12 ins., from pots	$200.00
6 to 8 ins., from pots	180.00
10 to 12 ins., XX beds	250.00
12 to 15 ins., XX beds	300.00
15 to 18 ins., XX field rows, $40.00 per 100.	

HOOK'S NURSERY
Box 25 Highwood, Ill.

EVERGREENS

Complete assortment of all worth-while
Pyramidal and Spreading Evergreens.

HOLTON & HUNKEL CO. NURSERY
P. O. Box 1747 : MILWAUKEE, WISCONSIN
Nurseries at Brown Deer.

COLORADO BLUE SPRUCE

		Per 100	Per 1000
70,000	4-yr., T. (2-2), 2 to 5 ins.	$5.00	$26.00
25,000	5-yr., T. (2-3), 4 to 8 ins.	7.00	36.00

These trees grown from seed from cones hand-picked from blue trees in Colorado.
Prices of other Spruce, Pine and Fir on request.
ALL MICHIGAN-GROWN
WALTER A. STUDLEY NURSERY, Dept. AN, Fennville, Mich.

In the Country's Service

R. BRUMOND SMITH, son of R. Morgan Smith, of the Ernst Nurseries, Muncie, Ind., has left Camp McCain and is now stationed on the east coast.

LT. THOMAS HOBBS, son of Fred Hobbs, of C. M. Hobbs & Sons, Bridgeport, Ind., was home last month on a 10-day leave, returning to Camp Croft, S. C.

THE overseas address of Sgt. J. F. Wissenbach, of the Squirrel Hill Nursery, Pittsburgh, Pa., is Hq. Btry. 475 AAA Bn., APO 709, care Postmaster, San Francisco, Cal.

BOTH daughters of Vernon Krider, proprietor of the Krider Nurseries, Middlebury, Ind., are Wacs, one at Camp Roberts, Cal., and one at Aberdeen, Md. Another Wac is his former private secretary, now serving in Italy. A nephew is a lieutenant and now in France.

EMPLOYEES of Birchmont Gardens, Cambridge City, Ind., now in the armed forces are Robert Noble, with the medical corps in New Guinea; H. C. Tuterow, with quartermasters corps in India; Earl Clifton, a fighter pilot at the front, and Robert Darling with the marines, present whereabouts unknown.

LLOYD POTTENGER, JR., son of Mr. and Mrs. Lloyd Pottenger, of the Pottenger Nursery & Landscape Co., Indianapolis, Ind., was wounded in action in France, August 16, according to word recently received by his parents. His brother Richard is with the army in England, and his sister Doris is an ensign in the Waves, stationed at Seattle, Wash.

LIEUT. (J. G.) LOLITA PANNELL, youngest daughter of Mr. and Mrs. Edwin D. Pannell, of the North Jersey Nurseries, Millburn, N. J., was home for the week-end of August 19. She is now stationed at Frederick, Md. Miss Pannell, a graduate of Brown University, was formerly a bacteriologist at Meadow Brook hospital, Hempstead, R. I. She received her naval training at Mount Holyoke College, South Hadley, Mass., graduating in the spring of 1943 with the rank of ensign, after which she was assigned to service at Washington, D. C. In honor of Miss Pannell's recent visit, a family dinner was held under the large shade trees at the Pannell home and nursery grounds, with children and grandchildren of Mr. and Mrs. Edwin D. Pannell present.

ON LEAVE from his position as traffic manager for Mount Arbor Nurseries, Shenandoah, Ia., Lt. Wayne N. Welch, U. S. Naval Supply Depot (243), Oakland 4, Cal., is engaged in a different kind of transportation work. He writes: "Have been in the navy almost sixteen months and have certainly had a workout. There is so much to be done and we are always short of help; so there is only one substitute and that is long working hours and plenty of hard work. Immediately after accepting my commission I was sent to an indoctrination school at Babson Institute, Harvard University, Boston, for six weeks and have been ashore here now, ever since. The first ten and one-half months I was transportation officer for this activity, a real man-killer of a job. Then the bureau of yards and docks took that part of this depot over and I was relieved, gaining thirteen pounds in weight the first three weeks off that job! Am now a pier officer, in charge of a large pier here and am responsible for loading ships. As navy billets are concerned, this is a good one, but none of them is any bed of roses."

NEW YORKERS MEET.

[Continued from page 8.]

home grounds improvement and reminded the nurserymen that extension service is not only a matter of field consultation, but that the department answers a large number of inquiries on problems relating to the landscaping of homes, the care of lawns and flower gardens, the growing of trees and shrubs and other phases of ornamental horticulture. In order to facilitate getting out information, a series of lantern slides has been prepared. These are available on loan from the college through the extension department. A special motion picture is being prepared for use in 1945 on the planting of trees and shrubs. This will be 16-millimeter color film and will be available for loan. Professor Bushey also stated that a series of projects are being prepared and a number of bulletins written in preparation for a 4-H club

ANY NEWS?

If you like to read the news notes about other firms in the field, nurserymen and their families, or members of their staffs, why not send in such items yourself?

There is special interest in the column about the boys "In the Country's Service." Can you contribute to it? Editor.

HARDY KOREAN BOXWOOD (Sheared)

One of our specialties.

400 ..... 9 to 12 ins.
600 ..... 12 to 15 ins.
800 ..... 15 to 18 ins.
200 ..... 18 to 24 ins.
70 ..... 24 to 30 ins.

If interested, write for prices and copy of our want list.

Largest growers of nursery stock in Canada.

E. D. SMITH & SONS, LTD.
Winona, Ontario, Canada

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PINUS MUGHUS—MUGHO PINE
Three times transplanted.
Specimen Plants
18 to 24 ins. 24 to 30 ins.
$1.25 each
Balled and Burlapped at the Nursery.
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4907 Orchard St. Harrisburg, Pa.
On Rt. 22, 5 miles east of Harrisburg

ORIENTAL PLANE TREES

300 8 to 10 ft.
300 1 to 1¼-in. cal.
250 1¼ to 1½-in. cal.
100 1½ to 1¾-in. cal.
also some 2-in. cal.
Stock well rooted and straight.
Prices on application.
MAPLE GLEN NURSERIES
Montgomery County
Maple Glen, Pa.

OAKS

Laurel-leaf	Pin
Willow	Rock Chestnut
Mossy-cup	English
Black	Pyramidal English
Turkey	Scarlet
Variable	Globe

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WALLINGFORD, CONN.
Representing
Adams Nursery, Inc.
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A complete line of well grown hardy plant material
Evergreens and Lining-out Stock

THE ATLANTIC NURSERIES, Inc.,
Berlin, Md.

have the following specials in extra-fine nursery-grown stock:

Hickory laciniosa and ovata, 6 to 12 ins. and 12 to 18 ins.
Juglans nigra, 12 to 18 ins., 18 to 24 ins. and 2 to 3 ft.
Tulip Trees, 12 to 18 ins., 18 to 24 ins., up to 4 to 5 ft. tps.
Lonicera heckrotti, tps., 3 to 4 ft.
Malus coronaria, 12 to 18 ins., up to 2 to 3 ft.
Photinia villosa, 2 to 3 ft. to 4 to 5 ft. tps.
In **Oaks,** we have **white, bicolor, falcata, lyrata, nigra, prinus, phellos, rubra and English;** 2-yr. S. 6 to 12 ins. and 2 to 3 ft. This is as nice a block of Oaks as you will find anywhere in the country.
Wistaria frutescens, japonica, chinensis, white and blue, 18 to 24 ins. and 3 to 4 ft. These are splendid seedlings.

These are just a few of the items we have for Fall. We would be pleased to quote you prices on any of the above and would like to have your Want Lists. Our Trade List will be out early in September and we shall be glad to send you one.

D. W. Babcock, Manager

We Offer—
For Fall 1944

EVERGREENS—In a large assortment of **PYRAMIDAL ARBORVITAE, PFITZER JUNIPER** and **YEWS** in grades at attractive prices. **SOME LARGE SPECIMEN EVERGREENS, SHRUBBERY, SHADE TREES, BARBERRY** 3-yr. transplanted, both red and green in grades.

CALIFORNIA PRIVET, 2-yr. in grades.

APPLE, 11 to 16 ins. to 1½-inch caliper, 3 and 4-yr. budded trees, good assortment.

Mail want list for prices.

THE WESTMINSTER NURSERIES
Westminster, Md.

LINING-OUT STOCK

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HESS' NURSERIES
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Old English BOXWOOD
(Wholesale Only)
All slow-grown dense specimens. Red clay soil. Priced by height and spread. 18x12 ins. to 24x22 ins. in unlimited quantities. Also large specimens up to 5 ft. Write for price list.
BOXWOOD GARDENS
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Wholesale Growers of
SMALL FRUIT PLANTS
Grapes, Currants, Gooseberries, Raspberries—our specialty.
FOSTER NURSERY COMPANY, INC.
69 Orchard St., Fredonia, N. Y.

Nursery Stock at Wholesale Only.

ARTHUR DUMMETT
61 W. Grand St. Mount Vernon, N. Y.

program in ornamental horticulture. This program will give 4-H club members in both rural and urban districts instruction and the opportunity actually to grow garden flowers, trees, shrubs and lawns and otherwise to improve their properties.

Recommends Plants.

Prof. R. W. Curtis led a discussion on the use of so-called tender plants in New York state. Among those which he called attention to were Korean boxwood, which has proved to be satisfactory at Ithaca, and Campsis tagliabuana Madame Galen. This particular variety flowers freely and is more handsome than the common trumpet creeper, Campsis radicans, commonly grown in New York state gardens. Professor Curtis also called attention to a number of plants, particularly the hollies and yews, grown primarily for their attractive fruit, which require both the male and female plants to be present for satisfactory fruiting.

Professor Curtis said nurserymen should warn their customers of those plants which are commonly subject to diseases and insect pests, so that the proper spray programs and cultural treatments can be recommended and satisfactory results obtained.

Automatic Watering.

At the commercial greenhouses the nurserymen observed the work of Dr. Kenneth Post and F. F. Horton in the automatic watering of roses and other greenhouse crops. Greenhouse crops watered automatically by an electrical time clock arrangement connected to soil tensiometers have produced as well as those watered by hand in the conventional manner. The system is particularly adapted to roses and carnations. All the labor of watering with the hose is eliminated, and the plants get water whenever the soil becomes dry enough to need it—even if this occurs at night, at five minutes before quitting time or on Sundays.

Joseph Howland called attention to the growth of plants in soil mixtures, using peat, Haydite and other materials. The production of roses is not influenced by using twenty-five to fifty per cent peat or cinders in the soil mixtures, provided all plants are watered at the same capillary tension (the degree of dryness). The use of Haydite decreased the production of roses, as did the use of a mulch on the surface of the bench. Mr. Howland explained that peat has a high water-holding capacity, but little of this water is available to the plant; thus, while the use of peat does increase the amount of water held by

EVERGREENS—In a large assortment of **Thuja, Juniperus, Chamaecyparis and Taxus.**

LARGE SIZES—**Cryptomeria, Arborvitae, Pine and Moss Cypress.**

SHADE TREES—**Linden, Norway Maples, Oriental Planes, Oak and Ginkgo.**

ORNAMENTAL—**Flowering Cherries, Crab Apple and Beeches,** named varieties.

BAGATELLE NURSERY
Half Hollow Hills
P. O. Huntington Station, N. Y.

LINING-OUT STOCK
OUR SPECIALTY . . . .

Shade Tree Whips . . . a timely finished product saving 2 to 4 yrs. growing effort . . . excellent variety.

A very complete line of
ORNAMENTAL TREES, SHRUBS and EVERGREEN SHRUBS,
including many scarce items.
Send for Fall 1944 list.

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BOBBINK & ATKINS
Nurserymen and Plantsmen

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Visitors always welcome.

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Paterson Ave. **E. Rutherford, N. J.**

EVERGREEN LINERS
Taxus, many varieties.
Juniper and Spruce grafts
seedlings and transplants.
Ask for our latest price list.
HEASLEY'S NURSERIES
Freeport Road, **Butler, Pa.**

HERBS
Owing to drastic conditions, shipping plants will be discontinued indefinitely. Price list of products which may be shipped will be sent upon request.
WEATHERED OAK HERB FARM
Bradley Hills, Bethesda, Md.

the soil, only a small proportion of this extra water is available for plant growth.

Studies on the keeping qualities of roses were shown by Mr. Howland. Flowers cut at 4:30 p. m. kept longer than those cut at 8 a. m. This occurred in twenty-five or twenty-eight tests, and the effect was more marked in summer than in winter. In winter the roses cut in the afternoon kept 7.4 hours longer than those in morning, while in summer the difference was 9.9 hours.

Propagation.

New methods in plant propagation were demonstrated by Dr. A. M. S. Pridham, who stated that subirrigation for rooting cuttings has proved beneficial with Euonymus alatus, Juniperus chinensis pfitzeriana and Viburnum carlesi. Rooting was heavier and in greater percentage. Subirrigation was done by using large metal containers that were flooded from the bottom once a week and allowed to drain out immediately after flooding. Coarse quartz sand was used as a rooting medium. During the summer the cuttings were syringed in addition to subirrigation. During the winter subirrigation was reduced to once a month or as needed.

Tests conducted during the past summer did not indicate any beneficial results from the use of indolebutyric acid when used as a dip for cuttings or as a spray on the foliage. The acid did increase rooting when used for soaking the cuttings twelve hours before sticking them in the bench.

The use of Fermate as a disinfectant resulted in a reduction of the loss of Euonymus alatus and in satisfactory rooting of the cuttings. V. W. Cochrane, assistant in plant pathology, explained the use of Fermate in mixtures with growth substances, which may combine the value of the disinfectant with that of the growth substance.

Taxus Growth.

The nurserymen were shown the results of the growth of taxus at the end of a 3-year period, the taxus being grown in three soil mixtures—clay loam, pH 6.4; wood soil, pH 5.5, and a clay loam-peat mixture, 30 per cent peat, pH 4.5. The largest top growth occurred in the wood soil. Heavily rooted but medium-size plants were produced in the clay loam, while the greatest loss of plants from heaving during the winter occurred in the soil-peat mixture. The nurserymen inspected the nursery area in which stocks are being developed for tests on winter hardiness and other projects.

Dr. Blauvelt showed the latest equipment for dusting and spraying. This precision equipment of laboratory type is used for the testing of new materials offered as insecticides. Of the many chemicals now available for this purpose, only a limited number can be tested in the field because of the immense amount of work required. Laboratory tests with precision equipment are therefore employed, and the most likely compounds selected for field trials. Both stationary and portable methyl bromide fumigation chambers were shown.

See Plantations.

The Cornell Plantations were discussed by Prof. R. W. Curtis. He explained that the original name of the Cornell Arboretum had been now supplanted by the term the Cornell Plantations. This was in line with the general planning for the use of the land of the university both for the growing of plants and for other agricultural purposes. Definite areas have been set aside, and roads have been constructed. Bridges, paths and trails have been built through certain areas, especially Fall creek valley and Cascadilla creek valley, which will be used for the planting of ornamental and botanical specimens. Professor Curtis led a tour through a section of the plantations where there are final plantings of tsuga, thuja, chamaecyparis, taxus and juniperus. He explained that basic collections have already been secured and many specimens set out in their permanent location. At the present time the juniper, taxus and pine collections are being added to yearly, and this work will go forward.

Professor Curtis paid tribute to Roger Bishop and said that the success of the plantings at the present time was due largely to the untiring efforts of the former superintendent of the Cornell Plantations. Mr. Bishop died suddenly of a heart attack August 7.

Visit Test Gardens.

The nurserymen next visited the Cornell test gardens and inspected the plantings in the official test garden of the American Rose Society and also the collection of shrubs and woody ornamental plants. Dr. Pridham called particular attention to the collection of hedges and to those which had proved worth while during a 10-year period. These include Acer campestre, Cornus mas, Elaeagnus angustifolia, Ligustrum ibolium, Ligustrum obtusifolium regelianum, Physocarpus opulifolius nanus, Quercus imbricaria, Ribes alpinum, Tilia cordata, Viburnum prunifolium and, among evergreens, Picea orientalis, Pinus mugo mughus, taxus and thuja in variety and Buxus microphylla koreana.

Work of the American Rose Society test gardens at Cornell was shown by R. E. Christie. The work includes tests of varieties and understock, spray program and factors re-

McDONALD RHUBARB

We can spare a few thousand A-1 divisions of the popular McDonald Seedless Rhubarb, strictly first-class stock at

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ACER PLATANOIDES NORWAY MAPLES

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6 to 12 ins.	$ 2.50	$15.00
12 to 18 ins.	3.50	25.00
18 to 24 ins.	5.00	35.00
2 to 3 ft.	9.00	60.00
3 to 4 ft.	12.00	100.00
4 to 5 ft., trans.	13.50	....
5 to 6 ft., trans.	20.00	....
8 to 10 ft trans.	45.00	....

6 to ft., ¾ to 1-in. cal. (straight trunks), per 100, $75.00. 8 to 10 ft., 1¼ to 1½-in. cal., per 10, $12.50; per 100, $100.00. 8 to 10 ft., specimen, 1½ to 1¾-in. cal., per 10, $20.00; per 100, $175.00.

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PFITZERS

An outstanding planting of Finished Trees.

24 to 30 to 36 ins.
also smaller sizes.
Beautiful stock B&B

Shipment in moss, if preferred, individually wrapped or bulked.

Also Tamariscifolia, various Pines, Concolor Fir, Colorado Blue Spruce, Colorado Silver Cedar, etc.

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Colorado Springs, Colo.

STREET AND SHADE TREES

In carlots only

First-class 4 and 5-yr.-old straight American Elm, Western Hackberry, Sycamore and Sweet Gum, 1½-in. to 3½-in., and natural-grown 2 to 4-yr.-old Eastern Redbuds, 1-in. to 2½-in. Write for advance wholesale prices.

THE CLASSEN COMPANY NURSERY
301 Terminal Bldg.
Oklahoma City 2, Okla.

Ornamental Trees, Shrubs and Evergreens

Write For Our Wholesale Trade List

W. & T. Smith Corporation
Telephone 2689 **GENEVA, N. Y.**

KELLY'S FRUIT TREES

Send us your Want and Surplus List.

Our 65th Year.

KELLY BROS. NURSERIES, INC.
Dansville, N. Y.

FRUIT TREES AND SMALL FRUITS

HARRISON BROTHERS NURSERIES
G. Hale Harrison, General Manager
BERLIN, MARYLAND

KOSTER NURSERY

Azaleas, Rhododendrons, Taxus, Junipers, Lilacs, Maples, Dogwood and other items in lining-out and smaller specimen sizes.

Write for our price list.

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Evergreens
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Write for wholesale price list.

GARDNER'S NURSERIES
Rocky Hill, Conn.

PRINCETON NURSERIES
of PRINCETON, N. J.
SUPERIOR
Hardy Ornamentals

NORTHERN COLLECTED EVERGREENS
Hardy, well rooted. **Abies balsamea, Thuja occidentalis, Tsuga canadensis.**
Priced per 1000. Cash.

3 to 6 ins.	$ 6.00	9 to 12 ins.	$18.00
6 to 9 ins.	10.00	12 to 18 ins.	25.00

Write for new list.
WILLIAM CROSBY HORSFORD, Charlotte, Vt.

lating to flower and leaf bud formation. Methods of winter protection were demonstrated.

The final stop of the tour was at the departmental nurseries on the Cortland highway. Experimental work there was shown by Prof. D. J. Bushey, who is studying root regeneration on transplanted stock of ornamental trees. This study was begun last year with the hope of determining the place and extent of root regeneration on pin oak and American elm.

Dr. Pridham pointed out that tests were also under way to determine the amount of pruning of root and of top that is necessary at the time of transplanting such plants as Spiraea vanhouttei, forsythia, Lonicera fragrantissima, Cornus florida, Cornus mas, Taxus cuspidata, Juniperus chinensis pfitzeriana and other common trees and shrubs used in home landscaping. Dr. Pridham pointed out that the use of peat moss in the soil at the time of transplaiting had proved as effective as the use of cinders at the same rate, twenty-five per cent by volume, in the soil for backfill at the time of transplanting. The plants had shown somewhat greater growth where cinders had been used rather than peat moss in the soil mixture. Loss of plants was greatest with the peat mixture. The growth of the plants in height was least when no soil amendment was used. Greatest growth occurred when the cinders were used as a soil amendment.

Evening Program.

The tour was concluded at Willard Straight Hall, and the nurserymen went directly to supper. The evening meeting was opened by a welcome from Dr. C. E. F. Guterman, director of research and director of the agricultural experiment station.

Dr. Kenneth Post, as acting head of the department of floriculture and ornamental horticulture, reported that during the past year the department had lost to the armed forces and to war activities twelve members out of twenty. Dr. Post stated that every effort was being made to continue the essential efforts of the department in teaching, research and extension work.

Discussion was led by John Visser, president of the Long Island Nurserymen's Association, as to the training available to young gardeners and the general failure of young men to enter the nursery industry. The discussion brought out the fact that vocational training in high schools, 4-H programs and new teaching methods will receive attention after the war period

APPLES AND CRABS

We have a nice stock of them.
XX 1⅛-in. (6 to 7 ft.) 1-in.
and 1¼-in.
VARIETIES:
Baldwin, Delicious, Fameuse, Golden Russet, Jonathan, Wealthy, Whitney and **Yellow Siberian.**

TREES

Mountain Ash ..1-in., 1¼-in., 1½-in.
Schwedler Maple .....1-in., 1¼-in., 1½-in.
Moline Elm ...6 to 8 ft. and 8 to 10 ft.
Vase Elm .....8 to 10 ft.
American Elm 8 to 10 ft., 1-in., 1½-in.

Write us your requirements and we will be pleased to quote you.

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JUNIPER GLAUCA HETZI

New Spreading Evergreen
Increasing in popularity in its third year.

Fall list about September 10 will describe in detail. Write us if you do not receive a copy.

FAIRVIEW EVERGREEN NURSERIES
Fairview, Pa.

SPECIAL FOR FALL 1944 ONLY
In lots of 50 or more.

MAHONIA ACQUIFOLIUM. 15 to 24 ins., B&B.....	Each **$0.68**
PYRAMIDAL ARBORVITAE from seeds. These run fat and chunky. 2 to 3 ft.....	**1.10**
PYRAMIDAL ARBORVITAE. Regular heavy grade. 2½ to 3 ft.....	**1.35**

Truckloads only. Cash F. O. B. our Nursery.

SHEPARD NURSERIES Skaneateles New York

PRIVET and BERBERIS
Splendid Stock
Write for Special Quotations
LESTER C. LOVETT
MILFORD DELAWARE

BURR
Leading wholesale source for Nursery Stock.
Send us your Want List.
C. R. BURR & CO., INC.
Manchester, Conn.

in youth training programs. Adoption of standard grades of nursery stock and of specific practices will make possible more uniform nursery practice and instruction. In summarizing the discussion, Mr. Visser urged nurserymen to keep abreast of the opportunities offered and to encourage their employees to take full advantage of these opportunities.

Address by Dr. Bailey.

The address of the evening was given by Dr. Liberty Hyde Bailey, professor of agriculture emeritus and director of the Bailey Hortorium. Dr. Bailey called attention to the status of the nursery industry at the time he went to Cornell University and traced briefly the development of the industry up to the present. Dr. Bailey's continued interest in plants and plantsmen is evident in his selection of the word horticulture for use in titles on his various positions. This was exemplified in the many experiences Dr. Bailey recalled during his address. In his days at Kew Gardens Dr. Bailey showed his interest in the growing of the plants and in the men who cultivated them. He would come to Kew early, entering by the gardeners' gate so that he would have time to talk with the gardeners before taking up his studies for the day. Dr. Bailey recalled his work at Harvard with the eminent American botanist, Asa Gray, and spoke of the concern expressed by Dr. Gray and his associates when he left the department of botany at Harvard to become professor of horticulture at the Michigan State College. Another instance that Dr. Bailey recalled was his meeting with Dr. Livingston Farrand to give to Cornell the collection of over 200,000 specimens of plants that Dr. Bailey had amassed in the course of his work. On this occasion the term h e r b a r i u m was proposed, but promptly rejected by Dr. Bailey, who on the spur of the moment provided the word "hortorium," and so Dr. Bailey has the title of director of the Bailey Hortorium, not the Bailey herbarium.

Dr. Bailey brought to the nurserymen a sense of pride in their profession. His own accomplishments and his plans for the future stand as a challenge and an inspiration to all interested in the welfare of floriculture and ornamental horticulture.

RECENTLY completing 25 years in business, Mrs. C. J. Foerster, Denville, N. J., has been forced to close the greenhouse and nursery. Her son, Carl W. Foerster, is in service in Honolulu and all of her help has been inducted.

OBITUARY

Mrs. L. E. Williams.

Mrs. Ellen Bassett Williams, 83, wife of Lester E. Williams, president of the L. E. Williams Nursery Co., Exeter, N. H., died suddenly, August 26. Mr. and Mrs. Williams were married April 17, 1894, and last spring celebrated their golden wedding.

Survivors are her husband, two daughters, Mrs. Harold Ladd, and Mrs. Carl Johnson; three sons, Charles H. Williams, Isaac L. Williams, both nurserymen, and Lt. Joseph B. Williams, U. S. N. R., now on active duty; also seven grandchildren and one brother, J. Murray Bassett.

Isaac L. Williams is the owner and proprietor of the Exeter Wild Flower Gardens, and Charles H. Williams is engaged in the same business a few miles distant in the neighboring town of Newfields. Lt. Joseph Williams participated in the conquest of Sicily and took part in the first landings in Italy, as commanding officer of a mine sweeper, for which he received a citation. After several months in this country, he has returned to the European war zone as commander of a larger vessel.

The L. E. Williams Co. has been engaged in the collection of a large order of Lilium canadense and erythronium bulbs, assisted by the sons. Lester Williams, although well past 80, is active in collecting and preparing material for shipment.

C. H. C.

Dr. Edward W. Berger.

Dr. Edward W. Berger, who died August 24 after a brief illness, aged 74, served as Florida experiment station entomologist from 1906 to 1915 and also as the first state nursery stock inspector from 1911 to 1915 and became entomologist with the Florida plant board on its creation April 30, 1915. He served as plant board entomologist until January 31, 1943, when he was retired from active duty.

He was the first state official to collect specimens of citrus canker and identify it as a disease. He took a leading part in the successful campaigns to eradicate canker and the Mediterranean fruit fly, two pests which threatened the entire citrus industry.

Dr. Berger was born at Berea, O., November 29, 1869. He received a bachelor's degree from Baldwin-Wallace College, Berea, and a doctor of philosophy degree from Johns Hopkins University. He is survived by his widow, Mrs. Emily Muller Berger, and one daughter, Mrs. E. G. Hume, Florala, Ala.

Lorenzo F. Kinney, Sr.

Lorenzo F. Kinney, proprietor of the Lowland Rhododendron Farm, Kingston, R. I., and one of the largest growers of rhododendron plants in New England, died at his home at Kingston September 9, following an illness of several months. He was 81 years old.

Born at Sunderland, Vt., October 8, 1862, Mr. Kinney attended schools

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For Fall and Spring Delivery

RASPBERRY Plants 1 and 2-yr. — Reds and Blacks

Boysenberry and **Youngberry**
Asparagus and **Rhubarb**—all sizes
Cherry, Pear, Plum and **Peach**

Also lining-out stock of Evergreens and Shrubs.

If wholesale prices available, send at once. We are in a position to place orders at once.

E. W. TOWNSEND & SON
Salisbury, Md.

WANTED

For understocks:
3000 **Lilac Seedlings**
2000 **Hawthorn Seedlings**

Also lining-out sizes in the following:
CUPRESSUS allemi
CUPRESSUS lawsoniana
CUPRESSUS lawsoniana erecta viridis
CUPRESSUS lawsoniana westermanni
CUPRESSUS lawsoniana wisseli
PICEA pungens kosteriana
Assorted MAGNOLIAS

H. M. EDDIE & SONS, Ltd.
Pacific Coast Nurseries
Sardis, B. C. Canada

WANTED
GOOD SEEDLINGS
American Persimmons—Papaws
Chinese Chestnuts—Shagbark Hickories
Northern Pecans.
SUNNY RIDGE NURSERY
Swarthmore, Pa.

STOCK WANTED

SYRINGA VULGARIS, blue (Common Lilac) from seed bed, also 12 to 18 ins. Submit sample with lowest cash price.

C. J. VAN BOURGONDIEN, INC.
Babylon, L. I., N. Y.

Rhodos
BOTH NATIVE AND NURSERY GROWN
KALMIA AZALEAS
Hemlocks AND Pieris
La Bars'
STROUDSBURG PA.

EVERGREENS
FOR EARLY FALL SHIPMENT
A wide assortment of well finished stock, including an exceptionally good lot of Pfitzer Juniper.
PFITZER JUNIPER
Heavy well shaped plants Per 10 Per 100
18 to 24-in. spr. B&B..$17.50 $160.00
24 to 30-in. spr. B&B.. 22.00 200.00
30 to 36-in. spr. B&B.. 27.50 250.00
Write for our preliminary price lists on Evergreens, French Lilacs and Peonies, which are now ready.
BRYANT'S NURSERIES
ARTHUR BRYANT & SON
PRINCETON ILLINOIS

PYRAMIDAL ARBORVITAE
2 to 3 ft., 3 to 4 ft., 4 to 5 ft.
In car lots for fall or spring delivery. Write us for prices.
STORRS & HARRISON NURSERIES, INC.
Painesville, Ohio

BUXUS SEMP. WELLERI
(Weller's Hardy Northern Type)
Only Boxwood proved hardy in Northern States for Twenty Years.
Ask for our Perennial catalog.
WELLER NURSERIES CO., Inc.
Leading Perennial Growers
Holland, Mich.

We have a substantial surplus of ornamentals:
SHRUBS, SHADE AND FLOWERING TREES
Send your Want List for quotations.
PONTIAC NURSERIES
Romeo, Mich.

Wholesale growers of the best
Ornamental Evergreens, Deciduous Trees, Shrubs and Roses.
Write for our current trade list.
THE KALLAY BROTHERS CO.
Painesville, Ohio

BURTON'S
HEADQUARTERS FOR EVERGREEN GRAFTS, TRANSPLANTED EVERGREENS, SHRUB LINERS.
RARE ITEMS YOU DO NOT FIND IN MOST LISTS! Write!
HILLTOP NURSERIES
CASSTOWN, OHIO

in his native town and at Worcester, Mass. He graduated from the Massachusetts Agricultural College in 1888 and later attended Boston University, where he received his B.S. degree. He also attended Harvard University.

In 1889, he was appointed the first professor at Rhode Island College, where he served as professor of horticulture until 1899, when he resigned to devote all his attention to collecting and propagating rhododendrons and other evergreens. He developed several new varieties of rhododendrons. Survivors include two sons, two daughters, four brothers and a sister.

Frank C. Woodruff.

Frank Clark Woodruff, president of the seed firm of S. W. Woodruff & Sons, Orange, Conn., died September 7 at St. Raphael's hospital, New Haven, where he had undergone an operation. He was 77 years old.

Born October 27, 1866, at Orange, Mr. Woodruff spent his boyhood days on the seed farm which had been established by his father in 1865. He graduated from Yale University in 1888.

The year following his graduation from college, he was taken into his father's business as a partner, and a few years later his brother, Watson, was also taken into the firm.

Mr. Woodruff served a term in the Connecticut state senate. He was director of the West Haven Bank & Trust Co., West Haven, Conn.; a director of the Hull-Grippen Co., New York, a large hardware business; president of the Standard Cold Storage Corp., New York, and director of both the Cromwell Water Co., Cromwell, and the Orange Water Co., Orange.

Mr. Woodruff's first wife, Mrs. Julia Alling Woodruff, died in 1930. He is survived by his second wife, Mrs. Jane Woodruff, and two daughters, Mrs. Maurice Rogers and Mrs E. E. Snyder.

Nicholas F. Smith.

Nicholas F. Smith died September 3 at the General Hospital, Dansville, N. Y., aged 74, after a short illness. He had been employed by the Maloney Bros. Nursery Co. and the Kelly Bros. Nurseries at Dansville. He is survived by one son, Norbert A. Smith, Cranford, N. J.

BIRDS may be kept away from cherry trees, it is said, by tying artificial or wood-jointed snakes, found in 10-cent stores, along the branches or twigs of the trees. An old piece of hose, similarly tied in a snakelike roll, is said to deceive the birds.

EVERGREEN LINING-OUT STOCK
For Fall Planting
Transplanted Stock

	Per 100
Biota orientalis (Chinese A.V.)	
10 to 15 ins.	$15.00
6 to 10 ins.	10.00
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12 to 15 ins.	35.00
9 to 12 ins.	25.00
6 to 9 ins.	15.00
Juniperus communis (Upright form)	
12 to 15 ins.	17.50
9 to 12 ins.	15.00
6 to 9 ins.	12.50
Juniperus communis hibernica (Irish J.)	
6 to 9 ins.	12.50
4 to 6 ins.	10.00
Juniperus chinensis pfitzeriana	
18 to 24 ins.	50.00
15 to 18 ins.	35.00
12 to 15 ins.	25.00
9 to 12 ins.	17.50
6 to 9 ins.	15.00
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Evergreens — Shrubs
Lining-out Stock
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New Carlisle, O.

Answers to Inquiries

SAWDUST AS MULCH.

Readers' response to the article in the July 1 issue revealed a considerable interest in the use of sawdust for improving the soil.

Regarding the statement made that nitrogen added in sufficient quantities to give the sawdust the equivalent of about two per cent nitrogen would overcome the detrimental effects of the sawdust in soil low in available nitrogen, one reader asks, how much nitrogen of soda, containing sixteen per cent nitrogen, would be required to produce the two per cent results.

Another asks whether the experimental work with sawdust has gone far enough to differentiate between sawdust from hardwoods and from softwoods, or from green lumber as contrasted with dry lumber.

To these inquiries L. M. Turk, associate professor in soil science at Michigan State College, whose findings were the subject of the earlier article, contributes these answers:

"Sawdusts vary considerably in their content of nitrogen, but if we assume that a ton (on a dry basis) contains about five pounds of nitrogen, it would thus be necessary to add about thirty-five pounds of nitrogen with each ton of dry sawdust to give it the equivalent of two per cent nitrogen. Two hundred pounds of nitrate of soda would supply thirty-two pounds of nitrogen, which, in my opinion, would be sufficient. If sawdust is added to soils well supplied with nitrogen, the amount of nitrate of soda could be appreciably reduced.

"In the work that our department has done on this subject, we have not found any appreciable difference between the hardwoods and softwoods.

"I would expect sawdust from green lumber to have a greater retarding effect on the soluble nitrogen content than sawdust from dry lumber, but the effect would be of a shorter duration. My reason for believing this is that the green sawdust would likely decompose more rapidly at first and thus the harmful effect would not extend over as long a period of time. However, we have not performed any experiments along these lines.

"I might add that sawdust applied as a mulch will not decrease the soluble nitrogen content in the soil as much as if it is mixed with the soil. Also, sawdust that is pretty well rotted generally has no detrimental effect on the soil."

PLANTS FOR SEASHORE.

I have read your magazine for years and in that time I have never read an article on trees and shrubs that grow along the seashore. I am starting here in Texas to grow plants that will thrive on coastal lands. This section is new in a way, and little has been planted but oleanders. Is there any publication on shore plants? W. J. M.—Tex.

Some information is obtainable on plants for shore planting, but these chiefly refer to the northern section of the country, as along the New England coast. For such localities there are lists of plants, such as in A. D. Taylor's "The Complete Garden." These would not be useful in your southern climate, but there may be some suggestions in a list of trees for coastal plantings which appeared in bulletin 95 of the Florida agricultural extension service, on "Ornamental Trees," by Harold Mowry. In that bulletin appears the following:

The growing of ornamental plants in situations immediately adjacent to the seashore is severely handicapped, since so few plants are adapted to saline soils or thin sands and a salt-laden atmosphere. Some few, however, are much better adapted than the majority, and the following trees are among those most widely planted in such locations. In addition, a few species of palms are quite satisfactory.

Acer rubrum.
Baccharis species.
Calophyllum inophyllum.
Casuarina species.
Chrysobalanus icaco.
Coccolobis uvifera.
Cordia sebestena.
Eriobotrya japonica.
Eugenia species.
Ficus species.
Grevillea robusta.
Hibiscus tiliaceus.
Laguncularia racemosa.
Melaleuca leucadendron.
Myrica cerifera.
Pithecellobium dulce.
Populus deltoides eugenei.
Terminalia catappa.
Thespesia populnea.
Torrubia longifolia.
Yucca species.
Xanthoxylum fagara.

E. W. CHATTIN, of the Tennessee Valley Nursery, Winchester, Tenn., has been named local chairman of the committee for economic development, planning postwar industrial employment.

Compiling a New Nursery List

By L. C. CHADWICK

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Three series of articles on superior varieties of trees, shrubs, vines and ground covers, reprinted from the American Nurseryman.
Describe and discuss the best plants among trees and shrubs in various sizes, as well as vines and ground covers.
List uses, culture, characteristics and growth habits, to make easy selection of suitable varieties for various landscape purposes.
Sources of supply of selected plants indicated in list of nurseries.

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Cold resistance is inherent in the variety rather than in the locality where it may be grown.

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ORNAMENTAL SHRUBS
SHADE TREES, VINES
FOREST TREE SEEDLINGS
LINING - OUT STOCK

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CATALOGS RECEIVED.

Henry Kohankie & Son, Painesville, O.—Fall price lists of deciduous and evergreen trees, shrubs and vines, herbaceous and alpine material, roses, fruit trees and small fruits, 216 pages and cover, 4½x7¾ inches.

Charles Fiore Nurseries, Prairie View 1, Ill.—Fall wholesale list of deciduous and evergreen trees and shrubs, vines, fruit trees and perennials, 32 pages and cover, 4x9 inches.

Doty & Doerner, Inc., Portland, Ore.—Wholesale price list of evergreens, conifers, deciduous trees and shrubs, espalier and dwarf trees, small fruits, lilacs and camellia liners, 36 pages and cover, 4x9 inches.

Brownell Roses, Little Compton, R. I.—Four-page folder of hardy hybrid tea and climbing roses, illustrated in color, including only Brownell hybrids.

Carroll Gardens, Westminster, Md.—Retail catalog of bulbs, roses and perennials for fall planting, illustrated in color, 12 pages, 8x11 inches. Separate 4-page folder listing iris and roses.

Wayside Gardens Co., Mentor, O.—Fall wholesale catalog of hardy plants, roses, shrubs, lilies, seeds and bulbs, 48 pages and cover, 8¼x11¼ inches.

Tingle Nursery Co., Pittsville, Md.—Fall wholesale price list of lining-out and specimen stock, 48 pages, 3¾x9 inches.

Griffing Nurseries, Beaumont, Tex.—Wholesale price list of deciduous trees and shrubs, evergreens, citrus fruit trees, palms and roses, illustrated, 16 pages and cover, 7½x10½ inches.

I. E. Ilgenfritz' Sons Co., Monroe, Mich.—Fall wholesale price list of evergreens, shade trees, shrubs, fruit trees and small fruits, vines and roses, 40 pages and cover, 5x8 inches.

Mount Arbor Nurseries, Shenandoah, Ia.—Six-page price list of peonies and hardy lilies, one page devoted to packaged peonies, 6x9 inches.

JAPANESE BEETLE.

Administrative instructions of the federal bureau of entomology and plant quarantine lift all restrictions as to the movement of cut flowers, after September 30, from the heavily infested area under the Japanese beetle quarantine, for the remainder of the season. The restrictions pertaining to fruits and vegetables were lifted at the close of August 25 for some portions of Virginia, Maryland and Delaware and at the close of September 8 for the remainder of the heavily infested area.

AN OFFICE has been opened by the R. W. Hastings Tree Surgery Co. at 1450 Sheridan road, Wilmette, Ill. Mr. Hastings is moving his family to the north shore and will personally supervise his work there, though continuing to maintain his office on the south side of Chicago, where he has operated for nine years. His brother will continue the Peoria office, from which downstate work is handled.

HOBBS OFFER:

ELM—MOUNTAIN ASH
BIRCH, Cut-leaf Weeping.
WHITE DOGWOOD—GINKGO
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PIN, RED, BUR, WHITE OAK
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EVERGREENS, up to 6 feet.

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BUXUS sempervirens, in specimen plants up to 38 ins. Write for prices.

We are located on paved highway between Greenville and La Grange. Hope you can visit our nurseries.

MOUNTVILLE NURSERIES
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Junipers and **Biotas** in landscape and sales yard sizes.
Truckload deliveries can usually be arranged within 400 miles.
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The apple tree of the future has been originated. If interested in raising this Frostproof apple tree for the market, write to

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Association Meetings

PLAN OREGON MEETING.

Nurserymen of the northwest are invited to visit Portland September 18 and to attend the meeting of the Oregon Association of Nurserymen during the following day. The program for the morning session September 19 includes reports of Secretary A. E. Pettersen, Treasurer Fred Borsch, members of the advisory board, standing committees and J. S. Wieman, superintendent of nursery service, and Frank McKennon, chief of the state division of plant industry.

At the afternoon session Howard Grady is to speak on "Europe in General," and Prof. R. G. Johnson, of Oregon State College, is expected to tell about his trips in China when he was loaned to the Chinese government as an expert on livestock.

Richard P. White, A.A.N. executive secretary, will report on national association activities, while the executive committee member for the Pacific coast, John A. Armstrong, Ontario, Cal., will speak briefly, as will W. J. Smart, Dundee, Ill.

CALIFORNIA PROGRAM.

Difficulty in obtaining the speakers desired delayed issuance of the program of the annual meeting of the California Association of Nurserymen held at the Hotel Sainte Claire, San Jose, Cal., September 13 and 14.

Prominent speakers scheduled were Bert D. Smith, secretary of the California Farm Bureau Federation, on the food outlook; Maunsell Van Renselaer, director, Santa Barbara Botanic Garden, on the use of California native plants in postwar plantings; William Hammond, manager of the western division of the United States Chamber of Commerce, on postwar buying trends; James Rye, former treasurer of the Caterpillar Tractor Co., on finance and credits; Don Follett, of the Oakland Chamber of Commorce, on postwar readjustment and employment, and Samuel F. Worswick, sales counselor, on merchandising.

H. M. Armitage, chief of the California bureau of entomology and plant quarantine, was scheduled to discuss "Mutual Problems of the Nurserymen and the State Department of Agriculture," and H. J. Ryan, Los Angeles county agricultural commissioner, the pinto tag.

Featured at the final session was Richard P. White, executive secretary of the American Association of Nurserymen, who on his way from Washington, D. C., had appeared before meetings of nurserymen at Fremont, Neb., Denver, Colo., and Salt Lake City, Utah, earlier in the month.

Full report of the San Jose meeting will appear in the next issue.

ROSE SOCIETY MEETING.

The annual business meeting of the American Rose Society is scheduled for October 4, at the Penn-Harris hotel, Harrisburg, Pa. The business session will start at 10 a. m. There will be a luncheon speaker, and the business session will be resumed at 2 o'clock. At dinner, at 6:30, there will be another speaker.

Because of wartime restrictions on chartering busses, there will be no organized tour of the gardens at Harrisburg and Hershey, but the Harrisburg municipal garden, the Breeze Hill garden of Dr. J. H. McFarland and the Hershey rose garden can all be reached by public transportation.

Accommodations may be had at the Penn-Harris hotel, but persons planning to attend are advised to make reservations direct with the hotel promptly, telling the date and hour of arrival. Persons expecting to attend the meetings should also notify the secretary of the society, Dr. Ray C. Allen, Harrisburg, Pa.

MIRANDY.

The red rose introduced by Armstrong Nurseries, Ontario, Cal., and awarded first place among All-America introductions for 1945, was named for the woman who has been heard in California on the national farm and homemakers' radio program for thirteen years. July 1 she opened Mirandy's Emporium in the farmers' market at Los Angeles, Cal., to handle all types of general merchandise. A garden supply department has been included, under the management of Glen Beers, for eight years connected with the Portland Rose Nursery.

ORNAMENTALS PRODUCING EDIBLE FRUITS.

The nurseryman, in selling for the picture garden, like the landscape gardener, has long stressed beauty as the sole requirement. The war has wrenched us all away from this kind of gardening, and the victory garden has shown the way to a profitable compromise. Now it becomes clear that all along the nurseryman has been missing a bet in failing to press with beauty the combination of permanency and usefulness, declared Albert Wilson speaking before the Central California Nurserymen's Association.

It is astonishing what this combination can do. The humble red cabbage, artichoke and rhubarb, when promoted to the picture garden, instantly become aristocrats. The scaffold habit of the apricot, the snowy-petaled blooms, its heart-shaped red-fringed new leaf; the shiny clean leaf of the Oriental persimmon with its rich fall display of colorful fruit; the fragrant orange, lime, lemon, grapefruit, kumquat and tangerine, their fruit ablaze in a dark green background; the loquat with its deeply veined leaves, offering its

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We are sold out on many lines, but still have to offer 1,000,000 fine large roots of Improved Washington **Asparagus; Blueberry** plants, Rancocas and Improved Hybrids. Also have **Boysenberries,** both Thornless and Thorny.

NOTICE
Decreased production makes it impossible to book orders for new customers. For the duration the limited supply is reserved for our regular trade.
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ARBORVITAE, Pyramidalis, Woodwardi, Beverleyensis, Berckmans, Lobbi, Hoveyi, Wareana, Compacta (Green and Golden).
CEDAR, Atlantica Glauca, Deodara.
CYPRESS, Alumi, Erecta Viridis, Wisseli.
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PINE, Mugho.
RETINOSPORA, Crippsi, Squarrosa, Plumosa, Filifera, Hinoki (Green and Golden).
SPRUCE, Kosteriana.
YEWS, English Golden, English Green, Oriental Spreading, Oriental Upright, Irish.
BROAD-LEAVED, Pink Dogwood, Azalea, Camellia, Magnolia, Daphne, Oriental Laceleaf, Maple, etc.
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Fruit and Shade trees with vigorous roots and sturdy stems.
Flowering trees, Weeping trees.
Shrubs, Roses, Small fruits.
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fruit with the dawn of spring; the midyear-flowering pomegranate with branches dangling with colorful fruit; the fig, grape, olive and sheaf of wheat, long ago combined as decorative symbol throughout the changing seasons, can be made the equal of any ornamental in any garden.

A partial list of useful decorative plants given by Mr. Wilson is:

Almond
Apples and crab apples
Avocados
Banana
Cactus
Cherimoyas
Chestnut
Date palms (where possible)
Feijoas
Fig
Filberts
Grapes
Herbs in variety
Jujube
Lemon (Eureka, Ponderosa, Meyer)
Limes (Rangpur, Sweet Lime)
Loquat
Mulberry (weeping)
Natal plum
Olives
Oranges in variety
Passion fruit
Papaw
Pears (Beurre d'Anjou, Doyenne du Comice, Forelle)
Persimmons
Pistachio
Pomegranate
Quince
Sapotas
Strawberries (in barrels)
Tangelos
Tangerines
Tomatoes (in tubs)

MULBERRY TREES FOR U. S. SILK INDUSTRY.

With the organization of a new raw silk industry in the United States, made possible by the perfection of an electric eye machine which will take all the handwork out of unreeling silk, the Burbank hybrid white mulberry tree assumes a new importance. This is the type of Morus alba which is said to contain the greatest amount of silkworm food. The following statements in regard to this project appeared in a recent issue of a textile magazine.

In the east the trees are being grown in Dvorak's Nursery, Hempstead, L. I., N. Y. On the west coast groves and nurseries are maintained at Elverta, Cal. One hundred acres of mulberry trees have been planted at Mineral Wells, Tex., under the direction of Walter S. Roberts, president of the Anscowain Mfg. Co., the firm which has laid the plans for the development of the American silk industry.

In addition, the firm is encouraging small farmers in various localities to enter mulberry tree growing and cocoon production on a small scale. Cocoons are supplied from the United States and are also imported from Turkey and Brazil.

Some silk made by the American process has already been delivered to the hosiery industry for trial. During the fourth war loan drive, 144 pairs of stockings made from this American-grown, machine-processed silk were sold for a $1,000 war bond

PORTLAND WHOLESALE NURSERY CO.
306 S. E. 12th AVENUE Avery H. Steinmetz PORTLAND, OREGON
Quality Stock
Cutleaf Weeping Birch
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GOOD WESTERN-GROWN NURSERY STOCK
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SEND US YOUR WANT LIST FOR QUOTATIONS.
Combination Carloads to Eastern distributing points at minimum freight cost.

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OREGON'S BEST SOURCE
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each on the Dave Elman Hobby Lobby hour on the radio.

The radio episode led Bloomingdale's to offer mulberry trees from Dvorak's Nursery for sale, with the promise that 150 silkworm eggs would be sent free with the trees. The response was sensational; something like 60,000 to 75,000 trees were sold. One farmer in New Jersey bought enough trees to plant fifty acres. A Russian colony at Lakewood, N. J., bought trees for ten acres. A farmer at Southbridge, Mass., also bought enough trees for ten acres, and there were many purchasers of trees for quarter acres.

It has been found that an 18 to 36-inch tree planted in the spring gives some leafage in the fall and is prolific by the next spring. Average productions are estimated to be about 1,800 pounds of cocoons per acre per crop. It takes about 100 pounds of cocoons to yield about ten pounds of silk.

Mr. Roberts states that raising cocoons is a fairly easy business, requiring close attention only during the twenty-five days when the worms are feeding, and he believes that the work will supply excellent rehabilitation jobs for returned war veterans. His firm plans to purchase cocoons from small farmers, but they must use the type of tree specified and purchase the eggs from the firm.

PINE ROOT WEEVIL.

A comparatively new pest, the pine root weevil, is becoming somewhat generally established. Scotch and Austrian pines are most likely to be infested. An unthrifty condition, particularly general browning of needles or the dying of individual branches, should lead to an examination of the base of the tree. The grubs of this weevil work in the inner bark below the surface of the ground and frequently in the bark at the base of the larger roots. They cause a considerable exudation of pitch, and masses of pitch-infiltrated soil beside the wounds are the most evident signs of infestation.

Recent studies have shown that the grubs of a weevil closely related to the white-pine weevil, well known because of its habitually killing the leaders of pine, especially white pine, may be associated with the pine root weevil. This insect is distinct from the white-pine weevil. It is Pissodes approximatus and is known to bore under the bark of the trunk of the tree up to some feet above the ground as well as at its base. It is decidedly less injurious than the pine root weevil.

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Freight allowed on carlots to any point in U.S. Sacked in about 100-lb. bags. About 4500 seeds to a bu. 1944 SOUTHERN NATURAL PEACH PITS. Very short crop. Will have a few ready September 15 to 20. Write for prices.
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	Bag	100 lbs.
Select Lawn Mixture	112 lbs.	$28.00
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Redtop, fancy silver seed	100 lbs.	19.00
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Sacked in good bags. Samples on request. Terms, cash. Seeds are scarce, so ORDER NOW.
All seeds F.O.B. Stephenville, Texas; Amity, Arkansas; or McMinnville, Tennessee. All orders shipped from nearest point. Address all orders to Wolfe Nursery, Stephenville, Texas.

No. Bu.	Per Bu.
1 to 9	$3.00
10 to 24	2.75
25 to 99	2.60
100 or over	2.50

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North Dakota and Montana Seeds
Northern-grown Tree, Shrub and Wild Flower seeds.
Wholesale crude botanicals.
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PRONOUNCING DICTIONARY of Plant Names
64 pages, 3000 names, 25c per copy
American Nurseryman Chicago

EXAMINE FRUIT TREES.

Four members of the staff of the Massachusetts State College have organized the Massachusetts Trueness-to-Name Inspection Service, sponsored by the Massachusetts Fruit Growers' Association. The members of the service are J. K. Shaw, A. P. French, O. C. Roberts and L. Southwick. This move implies no change in this work, which has been carried on for twenty-four years. It only gives it a name and the expressed approval of the organized fruit growers of Massachusetts.

The work of examining nursery trees for trueness to name has been completed for 1944. Several new nurseries have been examined and a few omitted examination for this year. When a nursery has been examined for two or three years, mixtures and misnamed trees are eliminated. However, new ones soon creep in, often among buds from bearing trees. Our experience indicates that such buds are mixed quite as often as those cut in the nursery.

The examination includes apple, pear, plum, sweet cherry, and 2-year sour cherry. One-year sour cherry trees of certain varieties are difficult to identify; hence, the desirability of waiting until they are older. Peach trees are examined, but as it is difficult or impossible to identify some varieties as nursery trees, examination of peach trees is less satisfactory than that of other tree fruits. Nevertheless, a great many mixtures and misnamed peach trees are detected and corrected each year.

Bulletins describing the young trees of apple, cherry and plum varieties have been prepared by the men of the Massachusetts Trueness-to-Name Inspection Service and are available on request to the Massachusetts experiment station. Bulletins on pears, blueberries and raspberries are in preparation.

A list of the nurseries examined for trueness to name may be obtained by sending a postal card to the Department of Pomology, Massachusetts State College, Amherst, Mass.

J. K. Shaw.

L. A. ANDERSON, Prairie View, Ill., has acquired thirty-seven acres of land, which will be planted to shade and fruit trees and perennials.

JOBBERS WANTED

Balsam Festooning for street and interior decorating. We manufacture the best. Special prices to jobbers of 10,000 ft. or more. We protect jobbers' prices. Early orders received prior to October 10 will be given lowest rates. Sell your own city and surrounding towns their Christmas street decorations. Write for prices now, stating approximately the amount you may want.

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Manly, Ia.

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Help and Situation Wanted and For Sale advertisements.
Display: $2.50 per inch, each insertion. **Liners: 20c** line; minimum order **$1.00.**

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THIS SHOULD SELL ITSELF.

BUSINESS THIS SEASON $100,000. PROFITS $50,000.

Will sell for $20,000—Total price

To the first buyer with the cash to take over December 1.

Illness compels me to retire; otherwise you could not buy at any price.

Sale consists of 110-acre nursery in northern New Jersey with 9-room modernized house, electricity, steam heat, running hot and cold water, inside bath; also 4-story barn and storage building and large new building for packing, shipping, storage, etc. Buildings alone appraised by the insurance company for insurance over $20,000.

Sale includes, in addition to land, buildings, plants, implements, etc. in New Jersey; also mailing list and good will of the Robert Wayman business. Please don't write unless you are definitely interested in buying and have the money.

ROBERT WAYMAN, Bayside, L. I., N. Y.

HELP WANTED

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RETURNING SOLDIERS AND DEFENSE WORKERS

We have a permanent job for you if you can qualify for any of the following positions which we will add to our present organization:

BOOKKEEPER with tax experience and capable of typing.
$1800 to $4000 a year.
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LANDSCAPE ARCHITECT. $1800 to $3600 a year.
LANDSCAPE ENGINEER. $1800 to $3600 a year.
GREENHOUSE MAN. Grower of potted plants, etc.
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NURSERYMAN, PROPAGATOR and GROWER.
$1500 to $2600 a year.
TERMITE SALESMAN and TREATER. $2200 to $3600 a year.
TREE SURGEON. $1800 to $3600 a year.

Give references, experience, age and full particulars in detail in first letter. No applicant will be given a personal interview without letter of qualification first. Other than ex-soldiers, applicant will be required to have a statement of availability or be exempt from draft service.

ARTHUR MURRAY CO., INC.
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HELP WANTED

Propagator for perennial plant nursery, capable of handling 6 greenhouses and outside facilities accompanying. Work carries complete responsibility for production of fine varieties of hardy plants.

A splendid opportunity for one who is interested in a fascinating field of the nursery business. Living facilities provided on property in this pleasant community.

Please write full particulars and we will be glad to reply with definite details of our proposition.

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Give experience and qualifications. Address Box No. 321, American Nurseryman, 343 S. Dearborn St., Chicago 4.

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Man aged 50, married and in excellent health, wishes position as office or sales manager or combination. Experienced in practical end of business and knows stock. For 15 yrs. has been handling advertising and catalog editing for trade throughout U. S. Available at once. Address Box 320, American Nurseryman, 343 S. Dearborn, Chicago 4.

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"By all standards the outstanding shade tree book published in the past thirty years....."

Maintenance of Shade and Ornamental Trees

By P. P. PIRONE

Associate Professor of Plant Pathology at Rutgers University

Foreword by L. H. Bailey

"Not since Solotaroff's **Shade Trees in Towns and Cities,** published in 1911, have we had a comprehensive book on the planting and care of shade trees. Shade tree and park men have long felt the need for an up-to-date treatise on the subject, and Dr. Pirone has very adequately filled this void in present-day shade tree literature. The science of shade tree preservation is now recognized by most leading Universities and Dr. Pirone has furnished the logical text-book for their use," continues PHILIP E. ALDEN, Editor, **The Shade Tree.**

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2. THE SOIL AND ITS RELATION TO TREES
3. TRANSPLANTING
4. FERTILIZERS AND THEIR USE
5. PRUNING TREES AND TREATING WOUNDS
6. CAVITY TREATMENTS
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9. DIAGNOSING TREE TROUBLES
10. NON-PARASITIC INJURIES
11. INSECT CONTROL
12. SPRAYING EQUIPMENT AND PRACTICES
13. TREE DISEASES AND THEIR CONTROL
14. GENERAL PARASITIC DISEASES
15. DISEASES AND INSECT PESTS OF STREET AND ROADSIDE TREES
16. DISEASES AND INSECT PESTS OF ORNAMENTAL DECIDUOUS TREES AND SOME SHRUBS
17. DISEASES AND INSECT PESTS OF EVERGREEN TREES AND SOME SHRUBS

Illustrated with about 200 original photographs and line drawings. 15 pages of exhaustive bibliography. 424 pages..... $5.00

AMERICAN NURSERYMAN

508 S. Dearborn St., Chicago, Ill.

VITEX AGNUSCASTUS LATIFOLIA (MACROPHYLLA).

The chastetrees are rather large, straggly shrubs, which may reach a height of ten to twelve feet. However, in the northern regions they are treated usually as semitender shrubs and cut back each spring nearly to the ground. When this procedure is followed, they usually do not reach a height of more than five or six feet. The common chastetree, Vitex agnuscastus, has been an old-time favorite in our gardens. It is a native of Europe and Asia and has been in cultivation for a long time. More recently, a variety listed as latifolia, the hardy lilac chastetree, has appeared in the trade. This variety is sometimes listed as the species macrophylla. In general, it is a more vigorous grower than the species, with larger leaves and somewhat more hardy. Five to seven leaflets make up the compound leaves. The leaflets will vary in length from about three to five inches and are approximately an inch broad. The leaves are grayish-green above and distinct gray and hairy beneath. The foliage is distinctly aromatic. The four-angled branches are quite noticeable.

The outstanding feature of the hardy lilac chastetree is the late flowers. Fragrant lilac-colored flowers are produced in dense clusters, four to seven inches long, produced from July through September. It is one of our outstanding late summer, early fall flowering shrubs.

The vitex does the best in rather light, sandy soil in sunny situations. For best production of the flowers, the plants should be supplied with ample moisture. Frequently a mulch around the plants can be used to advantage. Since all of the vitex are somewhat tender, the best method of handling them in the northern regions is to cut them back severely each spring. They may be cut to within six inches of the ground. New growth will develop rapidly, and a good production of bloom will follow in summer and early fall. In the milder climates, such severe pruning will not be necessary; it is often necessary to cut the hardy lilac chastetree, but little in the spring. Propagation can be accomplished by seeds or by softwood cuttings.

For flower display and attractiveness in landscape planting this species of vitex is worthy of more extended use. It does well as specimens or as plants in the herbaceous or woody borders.

L. C. C.

CLASSIFIED ADS

Five lines, $1.00,

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BERRY PLANTS

STRAWBERRY PLANTS
Certified. 6,000,000 Blakemore, Klondike, Aroma and Dunlap. Grown on new land. Excellent quality. Orders booked for fall and spring delivery. $7.50 per 1000, 25 per cent deposit with order. Due to the shortage of strawberry plants, we advise you to book your order at once.
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Dayton, Tenn.

Strawberries, dewberries, youngberries, common and thornless boysenberries, raspberries, gooseberries, blackberries. Booking orders now for fall and spring delivery.
V. P. BASHAM, Mountainburg, Ark.

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Also Lucretia Dewberry. No. 1, 2-yr. Eldorado Blackberry plants. Strong and healthy. $2.00 per 100. $25.00 for 2000.
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BULBS

DAFFODIL BULBS for fall planting. Yellow Trumpet and Double; 15 bulbs, $1.00. King Alfred, 25c each. Postpaid.
NARCISSUS NURSERY, Flora Webster, Prop.
R. D. 2, Genesee, Pa.

EVERGREENS—Lining-out

SEEDLINGS

	Per 100
Douglas Fir, 4 to 6 ins.	$1.25
Douglas Fir, 6 to 8 ins.	1.50
American Arborvitae, 4 to 12 ins. Above lowland grown.	1.25
Balsam Fir, 4 to 8 ins.	1.25
Jack Pine, 4 to 8 ins.	1.25
Scotch Pine, 6 to 8 ins.	1.75
Western Yellow Pine, 6 to 8 ins.	1.25
European White Birch, 12 to 18 ins.	2.50
Canoe or Paper Birch, 18 to 24 ins.	4.00
Canoe or Paper Birch, 12 to 18 ins.	2.50
American White Ash, 6 to 10 ins.	1.25
American White Elm, 4 to 8 ins.	.75
Chinese Elm, 4 to 8 ins.	.75

10 per cent discount in 1000 lots, cash.
C. WILSON'S NURSERY, Pembine, Wis.

	Per 100
Mugho Pine, 12 to 15 ins.	$50.00
Mugho Pine, 15 to 18 ins.	75.00
Engelmann Spruce (75 per cent blue)	
12 to 18 ins.	50.00
18 to 24 ins.	75.00
Scotch Pine, 2 to 3 ft.	50.00
Scotch Pine, 3 to 4 ft.	75.00
White Spruce, 15 to 18 ins.	40.00

Bushy, 3 times transplanted. Cash with order. No charge for boxing or baling. Roots packed in moss. If B&B desired, add 35c per tree.
TUNNEY & SON NURSERIES,
Kenosha, Wis.

COLORADO BLUE SPRUCE	Per 1000
4-yr., 4 to 8 ins.	$18.50
2-2 trans., 4 to 8 ins.	40.00
DOUGLAS FIR, 2-yr., 3 to 6 ins.	12.50
AMERICAN RED PINE, 2-yr.,	
2 to 4 ins.	12.00
2-2 trans., 5 to 10 ins.	22.50
NORWAY SPRUCE, 2-2 trans.,	
5 to 8 ins.	27.50
WHITE PINE, 3-yr., 4 to 8 ins.	15.00

Order for fall and spring. Seedling and transplant list on request.
SAMUEL E. DIBLE, C.B.C. Nursery Agent
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50,000 TAXUS CUSPIDATA, 2-yr., R.C.
Exposed to full sunshine past 6 mos.
Very strong root systems.
4 to 6 ins. ..... $50.00 per 1000
6 to 8 ins. ..... 60.00 per 1000
Transplanting and distribution going on now.
Orders must be placed early. Heavy potted stock and frame transplants in quantity.
Correspondence invited.
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EVERGREEN LINERS
for fall 1944. Write for list.
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Johnstown, Pa.

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SPECIMEN EVERGREENS. Surplus on Pfitzer, Savin, Irish and Swedish Junipers. Also Pyramidalis and Globe Arborvitae. Write for new price list.
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EVERGREENS B&B

	Each
American Arborvitae, 3 to 4 ft.	$2.00
Oriental Arborvitae, 3 to 4 ft.	2.00
Oriental Arborvitae, 4 to 5 ft.	3.00
Taxus Cuspidata, Sprdg., 15 to 18 ins.	1.50
Taxus Cuspidata, Sprdg., 12 to 24 ins.	2.00
Taxus Cuspidata, Sprdg., 24 to 30 ins.	3.00
Taxus Hicksi, Sprdg., 18 to 24 ins.	2.00
Juniper Andorra, 18 to 24 ins.	1.00

Liners: Taxus Cuspidata, 12 to 15 ins.; Hicksi, 8 to 12 ins.; Juniper Andorra, 2-in. pots.
YOUNGSTOWN NURSERIES
R.D., North Jackson, O.

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MINNESOTA GARDEN CHRYSANTHEMUMS
Boreas, Duluth, Harmony, Moonglow, Redwing, Welcome, Chippewa, Purple Star, Red Gold, Sun, Red, Water Lily, Pipestone, clump 39c each. 1944 Introductions — Butterball, Glacier, Redwood, Snowball, clump 75c each. Cash.
PERKINS BROS., R. R. 6, St. Paul 9, Minn.

Rainbow Iris collection, very lovely varieties; 1 each of 25 kinds, $3.00; 1 each of 50 kinds, $5.00; 1 each of 100 kinds, $7.50; labeled.
Smith Gardens, Clarkston, Wash.

VIOLETS
SWEET-SCENTED BLUE VIOLETS. Large, nice plants. $3.00 per 100, $25.00 per 1000.
MRS. CHARLIE ROBINSON, Greenville, Ga.

Must vacate this fall, two acres of good variety of Peonies, mostly red.
$15.00 per 100 or $125.00 per 1000.
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From 2½-in. pots.
$60.00 per 1000.
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Bright Pink PERENNIAL VERBENA. Large field plants, $4.00 per 100; $25.00 per 1000.
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Peonies: Tree and Herbaceous, best varieties. Oberlin Peony Gardens, Sinking Springs, Pa.

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MARY WASHINGTON and PARADISE ASPARAGUS in large lots. Victoria Rhubarb, Horseradish cuttings and crowns. Also surplus of salmon pink Gladiolus and American Elm Seedlings, 3 to 4-ft. and 4 to 5-ft. trees. Write for prices. WELCH NURSERY, Shenandoah, Iowa.

ASPARAGUS crowns for fall planting. Martha Washington variety. Strong, vigorous plants.
500 for $6.50, $12.00 per 1000.
PINE CITY GARDENS
Pine City, Minn.

SEEDS

MAZZARD CHERRY SEED — testing 90 per cent and better germination, being offered for immediate delivery at 75c per lb. in lots of less than 50 lbs.; larger quantities, 60c per lb.
WAYNESBORO NURSERIES,
Waynesboro, Va.

PEACH PITS—California Lovell, $3.00 per bu. Native Carolina-Virginia pits being offered at $7.50 per bu. subject to our being able to collect.
WAYNESBORO NURSERIES,
Waynesboro, Va.

PEACH PITS
Southern collected, properly cured, high germination. Small seeds, $3.50 bu.; medium size, $3.00; large, $2.50. Terms ½ cash with order, balance C.O.D. Samples upon request.
RIVERDALE NURSERIES, Riverdale, Ga.

NEW CROP TREE SEEDS
Balsam Fir, White Pine, Norway Pine now being collected. Prices on request.
BRADEN NURSERY
South Windham Maine

SHRUBS and TREES

HONEYSUCKLE
LONICERA HALLIANA JAPONICA (Hall's Honeysuckle). Strong No. 1, 2-yr. field-grown; 3 to 4 leads, 18 to 20 ins. Carefully graded, selected plants, $4.00 per 100; $30.00 per 1000. Lighter plants, $20.00 per 1000. Immediate shipment.
MRS. CHARLIE ROBINSON, Greenville, Ga.

CORNUS FLORIDA.
Heavy, quality, mammoth-flowered white dogwood, 2 to 3 ft., $10.00 per 100; $75.00 per 1000.
MRS. CHARLIE ROBINSON, Greenville, Ga.

PAPERSHELL PECAN TREES, extra-fine, budded and grafted. World's largest growers. Fruit Trees. New catalogue and prices free.
BASS PECAN CO., Lumberton, Miss.

EVERGREENS AND TREES
Red Cedar, Pine and Magnolia Glauca, 12 to 18 ins., 10 cents ea., $75.00 per 1000.
Red Maple, Red Oak, Crab Apple, Plum, Chinaberry and Sweet Gum, 1 to 2 ft., $6.00 per 100; 2 to 3 ft., $12.00 per 100.
MRS. CHARLIE ROBINSON, Greenville, Ga.

VINCA MINOR, 4 yrs., Bowles variety. Many runners. Excellent growth. Prices $10.00 per 100, $75.00 per 1000 F.O.B.
SYLVANIA NURSERY & PEAT CO.,
New Galilee, Pa.

Send for new Fall list of ORNAMENTAL TREES, SHRUBS and EVERGREENS, both liners and whip-grade stock.
THOMAS B. MEEHAN CO.
Dresher, Pa.

AZALEAS.
Hardy, heavy (native) pink and white Azaleas, 2 to 3 ft., $10.00 per 100.
MRS. CHARLIE ROBINSON, Greenville, Ga.

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New 1944 crop—gum balls, pine cones, red cedar heavy with berries, pine needles, chinaberry and cotton pods, bright autumn leaves in various colors, magnolia pods full of bright red berries. Liberal sample of all, $5.00.
MRS. CHARLIE ROBINSON, Greenville, Ga.

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BAMBOO CANE STAKES
DYED GREEN—pencil thickness

	Contents Per bale	Price Per bale
***1½ ft.	2000	$ 7.50
***2 ft.	2000	10.00
***2½ ft.	2000	12.50
*3 ft.	2000	15.00
*,**4 ft.	2000	20.00

NATURAL COLOR—Medium Heavy

	Contents Per bale	Price Per bale
***2 ft.	1000	$ 9.25
**2½ ft.	1000	11.50
***3 ft.	1000	13.50
***4 ft.	1000	17.00
*5 ft.	500	11.50
*6 ft.	500	13.50

NATURAL COLOR—Extra Heavy

	Contents Per bale	Price Per bale
*4 ft.	500	$15.50
*5 ft.	250	13.00
*6 ft.	200	12.50
***8 ft.	100	8.50

F.O.B. New York and Chicago. Bale lots only.
* These sizes available for prompt shipment from New York.
** These sizes available for prompt shipment from Chicago.
*** These sizes available for prompt shipment from both New York and Chicago.
Quantity discounts: 10 bales up, less 5%.
25 bales up, less 7½%.
McHUTCHISON & CO.,
95 Chambers St., New York 7, N. Y.

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Baled or bulk in carload. Immediate delivery. Lowest quotations and samples on request.
TOBE'S TREERY,
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GIBRALTAR Frost Covers pay for themselves. Most economical, long lasting, also ideal for windbreaks. 6 ft. wide, price 50 ft., $13.75; 100 ft., $26.00; 150 ft., $39.00. NEW AMSTERDAM CO., 122 Chambers St., New York 7, N. Y.

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you can offer that surplus in a classified ad of 5 lines on this page — quickly and easily turning stock into cash.

AT ONLY 20c PER LINE

you can keep a list of specialty items before trade buyers through the selling season at small cost.

AMERICAN NURSERYMAN
343 S. Dearborn St. CHICAGO 4, ILL.

SELFMADE PAPER POTS. Fold them yourself and save the difference. Approx. 2x2x3 ins., $1.50 per 1,000, in cartons of 4,000 each. Cash with order. F.O.B. R. GRAH, 1428 Highland Ave., National City, San Diego Co., Cal.

COTTONETTE Squares are best for balling. Saves time and twine. All sizes in stock. Write for prices. NEW AMSTERDAM CO., 122 Chambers St., New York 7, N. Y.

MISCELLANEOUS

Priced Per Lot	
California Privet 350 12 to 18 ins.	$15.00
Paniculata Grandiflora Hydrangea 100 3 ft.	25.00
Rose of Sharon, assorted colors, 100	25.00
Silver Maple 100 4 to 6 ft., well branched	30.00
100 8 to 10 ft., well branched	75.00
Lombardy Poplar 100 6 to 8 ft.	20.00
Black Walnut, bushy, 100 3 ft.	30.00
Pussy Willow 100 2-yr., 10 ft.	30.00
Green Ash, shade trees, 100 8 to 10 ft., well branched	75.00
Phlox Subulata, assorted colors, 225	10.00
Hall's Honeysuckle, heavy clumps, 200	10.00
Locust, 100 3 ft. and over	20.00
Red Raspberry Plants, Latham, 200	15.00
Strawberry Plants, 300	10.00
Boxwood, 300 2-yr., well branched	30.00
Chrysanthemums, hardy, mixed colors, 300	15.00
Larch, 100 5-yr., 2 ft.	20.00
Azalea Hinodegiri, 100 6 to 8 ins., sheared	40.00
Colorado Blue Spruce 100 8 to 15 ins.	30.00
Canadian Hemlock 100 10 to 15 ins.	30.00
Norway Spruce 100 12 to 18 ins.	30.00

The above are all field-grown and in healthy condition. These prices are good until December 1, 1944. We are well stocked. Please send money or check with order.
WM. E. WENTZELL NURSERY, Sewell, N. J.

WANTED

WANTED: Hardwood cuttings, 8-in. lengths, of Weigela Eva Rathke, Philadelphus virginalis, Buddleia Ile de France, Cydonia japonica upright red, Forsythia fortunei, Forsythia viridissima, Hydrangea quercifolia, Kerria japonica pleniflora, Kolkwitzia amabilis, Lonicera tatarica rubra, Lonicera tatarica rosea, Philadelphus coronarius, Prunus glandulosa, Spiraea Anthony Waterer, Spiraea Vanhouttei, Syringa persica, Syringa vulgaris, Viburnum tomentosum plicatum. Must be true to name. Please quote prices November delivery.
T. G. OWEN & SON, INC.,
Box 946, Columbus, Miss.

STOCK WANTED
Please quote on all you can do:
5,000 Cherry, assorted varieties and sizes.
2,000 Pear, assorted varieties and sizes.
5,000 Boysenberry, both standard and thornless.
10,000 Red Raspberries, assorted varieties.
500 each Nectarine and Apricot
200,000 Strawberries, assorted varieties.
500 English Walnut, 3 to 4 ft.
500 Chinese Chestnut, 3 to 4 ft.
WAYNESBORO NURSERIES,
Waynesboro, Va.

WANTED: Transplanted understocks as follows:

Acer palmatum
Juniperus virginiana
Cornus florida
Magnolia kobus
Magnolia acuminata
Magnolia glauca
Picea excelsa

Please quote prices in lots of 1000 to 5000.
HESS' NURSERIES,
P. O. Box 52, Mountain View, N. J.

WANTED: Deciduous Lining-out stock in ornamental flowering trees, shrubs and vines, especially anything unusual in magnolias, crab apples, laburnums, oaks, cotoneasters, lilacs, mock oranges, deutzias, viburnums, etc.
ALANWOLD NURSERY,
Neshaminy, Bucks Co., Pa.

WANTED: Russian Olive seedlings and Honeysuckle in hedging grades. Write or wire quantity and price to:
THE FILLMORE COUNTY NURSERY
Canton, Minn.

WANTED: King Alfred and Tresserve Narcissus.
State size and price.
MATHEWS NURSERY
1216 W. Ridge Rd. Gary, Ind.

WANTED: Juniper understocks. Prefer Juniper Virginiana, 2½ to 3/16-in. caliper: Your prompt quotations will be appreciated.
LAKE'S SHENANDOAH NURSERIES
Shenandoah, Iowa

Introducing
E-Z CREPED WATERPROOF—The New Nursery Wrap
Light weight combined with strength—Pliable and easy forming.
Will not support mildew, fungus or moths. Mice or vermin will not eat through it.
In 200-yard rolls 24, 36, 48 and 60 inches wide.
Sheets to your order.
Reasonably prompt delivery Write for samples and prices
EAGLE WRAPPING PRODUCTS CO.
Packing Supplies for the Nurseryman
331 North Aberdeen Street Chicago 7, Ill.
A limited quantity available for immediate shipment in 30/30/30 plain waterproof in 200-yard rolls 18, 24, 36 and 48 inches wide.

SHADE TREE CONFERENCE.

[Continued from page 6.]

dusting equipment, or devising new equipment or methods to fit the material. And finally, we must find out which insects or diseases will be controlled with the new material.

All this gauntlet must be run before the scientists will recommend the material, or the manufacturers offer it for public sale. Some of the new materials will pass these tests. DDT holds considerable promise, but considerable more research work is needed on it; small quantities of it should be generally available by next year.

Dr. H. C. Young, of the Ohio agricultural experiment station, Wooster, presented much worth-while information regarding the newer fungicides and their possible use during the next few years.

Oak Wilt.

Three discussions during the afternoon period dealt with specific troubles. Dr. A. J. Riker, plant pathologist, University of Wisconsin, presented information which he and his associates had gathered regarding oak wilt.

The oak wilt disease has appeared in twenty-three counties in Wisconsin, five in Minnesota, two in Iowa and one in Illinois. Red and black oaks were the most common hosts and have not been known to recover once they were attacked by the wilt disease. Two wilting scarlet oaks have been found. White and bur oaks also are attacked, but seem relatively tolerant to the disease.

The first symptoms are a slight crinkling and paling of the leaves, often followed by a progressive bronzing to browning of the leaf blade from the lateral edges and apex toward the midrib and base. Mature leaves remain relatively still, but young leaves droop conspicuously. Defoliation varies in extent. Affected young leaves remain attached after wilting. Symptoms usually progress over the entire tree within a few weeks. Secondary foliage often appears along the trunk and larger branches, but this in turn wilts and dies. Discoloration in the sapwood of twigs has been found in numerous cases. No control measures have been developed.

Borer Control.

Dr. Stanley W. Bromley, of the Bartlett Tree Research Laboratories, Stamford, Conn., reviewed the subject of borer control in shade and ornamental trees.

Borer control is one of the more important phases of tree care and maintenance. Some of the basic factors predisposing trees to borer attack are drought, storm injuries, lightning, winter injury, defoliation by leaf-eating insects, effects of construction activities, chemical injuries, fire, carelessness in wood disposal and general neglect as a result of the war.

The principal methods of borer treatment are cutting out, fumigation, wrapping the affected trees, spraying, feeding and finally, as a last resort, cutting down and burning the infested tree to prevent the spread of the borers to other trees.

The tremendous number of un-

CLOVERSET POTS ARE AVAILABLE
Patent No. 2073695
No change in price.

Now made in four sizes, comparable in soil capacity to 6-in., 7-in., 8-in. and 9-in. clay pots. Prices as low as **$22.50** per 1000.
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healthy, unthrifty, drought-injured and neglected trees throughout the country today, with the borer threat of such proportions, offer a challenge to the tree expert and constitute a backlog of work for the postwar period.

Dutch Elm Disease.

New research on the Dutch elm disease was discussed by Dr. George A. Zentmyer, plant pathologist, Connecticut agricultural experiment station, New Haven.

It is possible to control the Dutch elm disease by pruning if it is detected in a sufficiently early stage. This has been demonstrated during the past three years by pruning elms six to thirty feet tall under carefully controlled experimental conditions. Summer inoculations can be pruned out more readily than spring inoculations. With natural infections in large trees the main difficulty in controlling the disease by pruning lies in detecting it in an early enough stage.

Defoliation by cankerworms greatly increases the extent to which elms become affected when inoculated with the Dutch elm disease fungus.

Spread of the Dutch elm disease depends on a number of factors, including number, distribution, size and condition of surrounding elms, number of bark beetles present, severity of original infection and weather conditions. When conditions are favorable, the disease builds up rapidly in local areas.

New organic chemicals show increasing promise in internal chemotherapy for controlling Dutch elm disease and give hope of ultimate successful immunization and control of the disease on a commercial scale.

Fruit Tree Maintenance.

The Friday morning session, September 1, was devoted to two subjects, a maintenance program for fruit trees and development of a successful municipal shade tree program. Prof. Frank Beach, department of horticulture, Ohio State University, talked on pruning and fertilization problems.

Pruning is practiced to get a suitable form to fit the tree environment, to get a strong tree and to keep the tree in condition for easy spraying, thinning and harvesting. Close-headedness is one of the common faults in fruit trees. It causes splitting of branches and canker. This is often caused by improper pruning activities the second year in the nursery. Too few of the cluster branches are removed, thus causing a thick growth. Proper training and correct spacing were emphasized. The avoidance of

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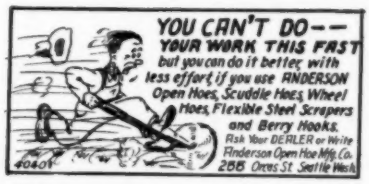
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No. T-208	¾ in.	$2.00	$5.50
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narrow crotches was advised to prevent breakage. Fertilization practices were recommended for the different tree fruits. Nitrogen, under most conditions, is the most needed element. The use of mulches was stressed.

This discussion was followed by one on insect and disease control problems in the orchard by Prof. Allen H. Bauer, plant pathologist, Pennsylvania State College.

Around two million bushels of fruit could be produced on trees in small noncommercial orchards. Most of this is lost because of disease and insect pests. If fruit trees about city homes and small orchards are not to be given protection, the practice of planting such trees should be discouraged. There are a number of problems involved in the spraying of fruit trees about city homes and in small orchards, such as what material should be used to give satisfactory results and at the same time not cause spray injury and what type of a spray program will best do the job. It appears that the most satisfactory spray program for these home fruit trees would include a dormant, pre-pink, a pink, a petal fall, a first cover, possibly a second, and end up with a third cover spray. The stone fruit would possibly get, in some cases, a pre-pink, a petal fall, a first cover and a third cover spray.

Municipal Program.

Samuel N. Baxter, of the Philadelphia Fairmount park commission, presented in some detail his ideas regarding city ordinances and specifications regulating planting and maintenance. The legal setup leading to municipal control of street trees in Philadelphia was discussed. Methods of taking a street tree census and how the information accumulated could be used were presented.

Carl Fenner, assistant city forester, Lansing, Mich., was unable to be present, but his paper on budget and organization was presented by Prof. Karl Dressel, of Michigan State College.

The city of Lansing has been fortunate enough to possess a well planned and integrated system of parks, recreational areas and tree-lined city streets. The governing body for the park, forestry and recreational programs is an 8-man body of nonsalaried professional and business civic leaders. The turnover in board membership is slow, making for a long-time planning policy. The management of the program has been accomplished by the park superintendent and city forester.

The work program and policy as applied to a municipal shade tree program were presented by J. C. Kenealy, tree warden, Lower Merion township shade tree commission, Ardmore, Pa.

All trees within or overhanging the public highways of the township are committed by law to the custody and

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Buy from your jobber or send 10c for 1-oz. sample (makes 6 gallons) or $1.00 for 1 lb. (makes 100 gallons). Dollar credited on first order for 1 case for resale or drum for your own use.

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care of the shade tree commission including authority to plant, remove, maintain and protect. All work done by the commission is at township expense.

One of the first activities of the commission was to make a careful study of conditions along the highways and start enforcement of shade tree regulations. For many reasons the survey is of invaluable assistance in adopting a proper work program. It shows fully the extent of the tree resources along the public highways, facilitates the preparation of a schedule of work for the removal of undesirable and unsafe trees and indicates the type of plant material that should be used to replace those removed. The survey also enables the study in advance of construction of a proposed road, with respect to the preservation of trees within the public right of way, and finally, it is of valuable assistance in giving intelligent answers to the many people who call requesting information about the trees along their frontage.

The foreman and his asistant contact all property owners involved and explain carefully what they intend to do and why. They never argue; if they run into trouble the property is left undone and a report is made to the tree warden, who is responsible for the settlement.

Part of the activities of the commission consists of providing information for homeowners. The municipal department should keep up with, and even sponsor, research. Not only is this helpful to homeowners, but it is also good publicity. The commission has gone a step further than preparing newspaper releases; it has prepared bulletins on three different subjects in which practical suggestions are offered to all interested citizens.

Closing Session.

Following the business session in the afternoon, C. L. Wachtel, Wauwatosa, Wis., presented a colored film, entitled "Beautiful Trees and Some Phases of Their Care," that he has used in advertising his business.

Prof. H. Menusan, Jr., of the department of entomology, Pennsylvania State College, discussed airplane dusting for insect control. The material presented was based on experiments conducted in Pennsylvania the past year. In some of these experiments the new insecticide DDT was used. Professor Menusan's warning was that we should not become too enthusiastic about this new material; it will not control all insects and may kill some beneficial kinds.

The educational sessions of the conference closed with a plant clinic con-

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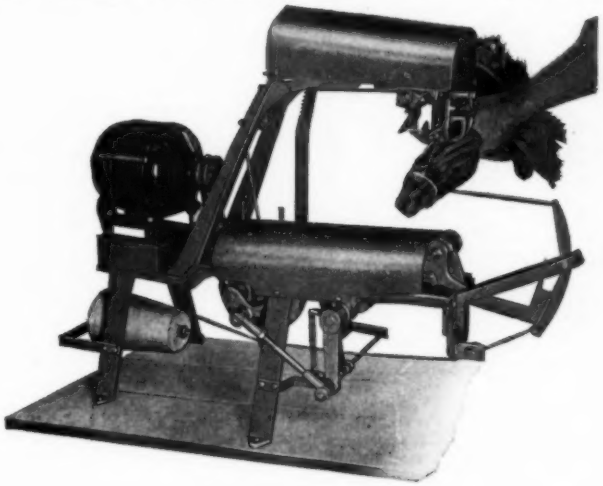

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ducted by Prof. Forrest C. Strong. These plant clinics have been held for several years, and they are always received with considerable interest.

RED SPIDER CONTROL.

A sulphur dust or spray applied when the temperature is fairly high is effective in controlling red spider on evergreens. Sulphur dust is more easily applied than a spray, is not so likely to stain painted buildings and is generally more satisfactory, especially if the plants are small and only a few are to be treated. Heavy applications of sulphur dust will burn the young tender growth on evergreens if the temperature is much above 80 degrees Fahrenheit. For this reason, it should be applied with caution early in the season.

One part of liquid lime-sulphur to forty-nine parts of water, or five pounds of wettable sulphur to fifty gallons of water, is a safe and effective spray on evergreens for spider control.

A spray which will clean up a heavy infestation of spiders, usually with one application, is made by dissolving one pound of glue in hot water, diluting to ten gallons and adding two and one-half ounces of dry lime-sulphur. The only disadvantage is the inconvenience of dissolving the glue.

GYPSY MOTH QUARANTINE.

Administrative instructions effective August 26, issued by the federal bureau of entomology and plant quarantine, authorize the interstate movement of Christmas trees and evergreen boughs from the generally infested area regulated under the gypsy moth quarantine, after fumigation with methyl bromide and certification. Experiments have demonstrated that fumigation of gypsy moth egg clusters under specified conditions will kill the eggs. Experience gained during the past two years in the use of fumigation as a basis of certification for movement from the lightly infested area has indicated that such treatment is practicable.

THE annual meeting of the Northern Nut Growers' Association has again been postponed because of the war, following a poll of members by the secretary. The annual proceedings for 1944 will be issued as usual, containing papers by members and others on various phases of nut culture. The 1943 report is still in the hands of the printer, but is expected to be mailed this month.

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Let these guys start it!

There's a day coming when the enemy will be licked, beaten, whipped to a fare-thee-well—every last vestige of fight knocked out of him.

And there's a day coming when every mother's son of us will want to stand up and yell, to cheer ourselves hoarse over the greatest victory in history.

But let's not start the cheering yet.

In fact, let's not start it at all—over here. Let's leave it to the fellows who are *doing* the job—the only fellows who will *know* when it's done—to begin the celebrating.

Our leaders have told us, over and over again, that the smashing of the Axis will be a slow job, a dangerous job, a bloody job.

And they've told us what our own common sense confirms: that, if we at home start throwing our hats in the air and easing up before the job's completely done, it will be slower, more dangerous, bloodier.

Right now, it's still up to us to buy War Bonds—and to *keep on* buying War Bonds until this war is completely won. That doesn't mean victory over the Nazis *alone*. It means bringing the Japs to their knees, too.

Let's keep bearing down till we get the news of final victory from the only place such news can come: the battle-line.

If we do that, we'll have the *right* to join the cheering when the time comes.

Keep backing 'em up with War Bonds

AMERICAN NURSERYMAN

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LINING-OUT EVERGREENS

FOR FALL 1944 - SPRING 1945 DELIVERY

The following are selected items of lining-out stock for the coming year. Many items are in short supply.

ONCE TRANSPLANTED — FLATS

This stock is either seedlings or cuttings transplanted into flats, and grown for one or two years. Suitable to plant in beds.

		Each	Each Per 1000
White Pine	6 to 8 ins.	**$0.13**	**$0.10**
Pyramidal Arborvitae	4 to 6 ins.	**.15**	**.12**
Hemlock	4 to 6 ins.	**.13**	**.10**
Euonymus Coloratus	8 to 10 ins.	**.18**	**.15**
Euonymus Radicans Vegetus	6 to 8 ins.	**.18**	**.15**

TWICE TRANSPLANTED — FRAMES

This stock has been grown either from seedlings or cuttings, grown two years in flats and transplanted into frames where it has been growing two years. Most items are suitable for field planting.

		Each	Each Per 1000
Concolor Fir	6 to 8 ins.	**$0.23**	**$0.20**
Pfitzer Juniper	10 to 12 ins.	**.30**	**.27**
Irish Juniper	8 to 10 ins.	**.19**	**.16**
Irish Juniper	10 to 12 ins.	**.22**	**.19**
Spiny Greek Juniper	8 to 10 ins.	**.28**	...
Andorra Juniper	8 to 10 ins.	**.20**	**.17**
Pachysandra	6 to 8 ins.	**.10**	**.09**
Dwarf Alberta Spruce	4 to 6 ins.	**.20**	...
Norway Spruce	6 to 8 ins.	**.17**	**.14**
Norway Spruce	8 to 10 ins.	**.18**	**.15**
Norway Spruce	10 to 12 ins.	**.20**	**.18**
Pyr. Norway Spruce	12 to 15 ins.	**.30**	...
Black Hill Spruce	10 to 12 ins.	**.17**	**.14**
Black Hill Spruce	12 to 15 ins.	**.28**	**.25**
Black Hill Spruce	15 to 18 ins.	**.31**	**.28**
Colorado Blue Spruce	6 to 8 ins.	**.16**	**.13**
Colorado Blue Spruce	8 to 10 ins.	**.18**	**.15**
Mugho Pine	6 to 8 ins.	**.23**	**.20**
Mugho Pine	8 to 10 ins.	**.38**	**.35**
White Pine	8 to 10 ins.	**.23**	**.20**
Douglas Fir	10 to 12 ins.	**.23**	**.20**
Douglas Fir	15 to 18 ins.	**.33**	**.30**

TWICE TRANSPLANTED—FRAMES (Cont.)

		Each	Each Per 1000
Upright Yew	6 to 8 ins.	**$0.23**	**$0.20**
Upright Yew	8 to 10 ins.	**.35**	**.32**
Spreading Yew	8 to 10 ins.	**.35**	**.32**
Spreading Yew	10 to 12 ins.	**.40**	**.37**
Spreading Yew	12 to 15 ins.	**.43**	**.40**
Brown's Yew	8 to 10 ins.	**.35**	**.32**
Hatfield Yew	8 to 10 ins.	**.35**	**.32**
Intermedia Yew	8 to 10 ins.	**.40**	**.37**
Hill Pyramidal Yew	8 to 10 ins.	**.35**	**.32**
Ward's Yew	8 to 10 ins.	**.35**	**.32**
Media No. 1	10 to 12 ins.	**.35**	**.32**
Hicks' Yew	8 to 10 ins.	**.28**	**.25**
Hicks' Yew	10 to 12 ins.	**.33**	**.30**
Hicks' Yew	12 to 15 ins.	**.43**	**.40**
Hicks' Yew	15 to 18 ins.	**.53**	**.50**
Pyramidal Arborvitae	8 to 10 ins.	**.23**	**.20**
Hemlock	8 to 10 ins.	**.31**	**.28**
Hemlock	10 to 12 ins.	**.33**	**.30**

TWICE TRANSPLANTED — FIELD

This is heavy stock from open field rows. Will quickly develop into specimen stock.

		Each	Each Per 1000
Concolor Fir	10 to 12 ins.	**$0.35**	...
Keteleer Juniper	18 to 24 ins.	**.95**	...
Pfitzer Juniper	12 to 15 ins.	**.55**	**$0.50**
Pfitzer Juniper	15 to 18 ins.	**.65**	**.60**
Hillbush Juniper	12 to 15 ins.	**.95**	...
Hillspire Juniper	18 to 24 ins.	**.95**	...
Norway Spruce	12 to 18 ins.	**.30**	**.27**
Norway Spruce	18 to 24 ins.	**.32**	**.29**
White Spruce	12 to 18 ins.	**.27**	**.24**
Black Hill Spruce	12 to 18 ins.	**.40**	**.37**
Scotch Pine	10 to 12 ins.	**.25**	**.22**
Scotch Pine	12 to 18 ins.	**.28**	**.25**
Pyramidal Arborvitae	24 to 30 ins.	**.65**	**.60**

NEW FALL CATALOG WILL BE MAILED SOON.

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